

JPRS-TND-86-026

3 DECEMBER 1986

**Worldwide Report**

**NUCLEAR DEVELOPMENT  
AND  
PROLIFERATION**



**FOREIGN BROADCAST INFORMATION SERVICE**

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WORLDWIDE REPORT  
NUCLEAR DEVELOPMENT AND PROLIFERATION

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HONG KONG

FINANCIAL SECRETARY SPEAKS IN 15 OCT DAYA BAY DEBATE

Excerpts of Speech

Hong Kong SOUTH CHINA MORNING POST in English 16 Oct 86 p 6

[Excerpts]

I intend to produce for issue to Members a paper which will provide, as far as the Government is able, the information sought in the motion. It will also address many of the specific points that have been made by Members.

On November 9, 1983, when I announced the Government had agreed to the Daya Bay project, I indicated it offered Hongkong an opportunity to demonstrate its desire to co-operate fully with China in its four modernisations program and that it also provided another clear indication of our faith in the future. Overall the project was seen as a positive development which augured well for Hongkong's future.

It was, of course, only after the accident at Chernobyl that the safety of the Daya Bay plant became a matter of great concern to the Hongkong public generally. Nevertheless, even after Chernobyl it is still accepted by many governments that nuclear energy must remain an option.

What Chernobyl did was to put into sharp focus as never before the potential problems of nuclear energy. Hongkong was no exception and with a revived and intensified public debate on Daya Bay, the Secretary for Economic Services visited the United Kingdom and France for on the spot discussions in the wake of the disaster.

One outcome of that visit was that the terms of reference of the Harwell study are to be extended to incorporate any lessons learnt from Chernobyl with particular reference to Hongkong and its circumstances. Moreover, last month Hongkong attended as an observer the International Atomic Energy Agency (IAEA) meeting on safety in Vienna.

At that special ministerial meeting two important conven-

tions on early notification and assistance in the event of a nuclear accident were adopted.

As to the Daya Bay plant itself, we must never lose sight of the fact that this is a power station being built in China. It is, of course, true that a Hongkong company has a minority position in the joint venture. And even though the Hongkong dimension has been important and has allowed us an input in the deliberations concerning the power station, the fact that it is a Chinese project necessarily limits the scope and scale of our involvement.

It must also be remembered that the Chinese have on many occasions made it clear that they intended to proceed with the power station with or without Hongkong's participation. Surely it is better for Hongkong to participate than be left out with no influence whatever over the construction of station and its subsequent operation.

No issue than Daya Bay, other than the agreement on the future of Hongkong, has been discussed so exhaustively in public. A mass of information has been given. In addition to debate, questions and statements in this Council, senior Government and Company officials have been involved in numerous press conferences, and briefings for Members of this Council. The Umelco Public Utilities Panel has also gone to great lengths to keep the media and public informed of development and their own discussions with key officials. The issue has been frequently aired at seminars and other public forums, all of which have been given saturation coverage by the media, which itself has been far from reticent in putting forward its own views.

The Government has at all times been fully aware of the deep and genuine concern expressed in Hongkong. It has done everything within its powers to convey this concern to the British Government and, through it, to the Chinese Government. One result has been the significant assurances on safety given by the Chinese authorities to the Legislative Council Delegation during their recent visit. Furthermore, consideration is being given to involving Hongkong people in monitoring the construction and operation of the Daya Bay station.

What are the Hongkong Government's specific responsibilities? They are the same as those of any metropolitan authority where a nuclear power station is built near its border; that is, first, to ensure as far as possible that those involved in building and operating the plant maintain the highest possible safety standards and, second, to devise contingency plans in case of an accident. In addition, there is the question of education of the community. The Government is discharging those responsibilities.

Now to the cost of electricity. Members of the public are, of course, concerned that they should pay no more than a reasonable price. Nevertheless, the future requirements for electricity in a continuously growing economy must be met if our industries are to remain viable and living standards are to improve. In practice, the arrangements that are embodied in the Schemes of Control have produced that result and have stood the test of time. We enjoy an electricity supply at a price that compares favourably with that charged elsewhere in the region. Shareholders have received a fair return that has been sufficient to induce continuing investment.

As to the Daya Bay project, throughout its evaluation and consideration our objective was to ensure that at the very least the cost of electricity generated by that station would be no more expensive than electricity generated in Hongkong by conventional means. Let me restate some of the considerations that were involved.

First, one of the main considerations that we took into account was the potential cost and financing of a new coal-fired station in Hongkong. Large sums of money would have been involved and there might well have been difficulties in obtaining investment of that magnitude without considerable financial strain.

Second, the share of Hongkong Nuclear Investment Company (HKNIC) in the Daya Bay nuclear power station will not constitute part of the CLP group of companies' net fixed assets for the purpose of calculating permitted return under the provisions of the Scheme of Control.

Third, and perhaps most important from the point of view of the consumer, the prior approval of the Government is required both for any financing plans the company may wish to adopt in relation to any major additions to the company's system and the tariffs the company may charge to its consumers.

Let me explain generally the procedures adopted for agreeing the levels of electricity prices charged by CLP.

We will give details in the paper that I shall be issuing on how the purchase of electricity from the Daya Bay station will be dealt with in calculating or computing the tariff charged by CLP.

Briefly, nuclear power purchased by CLP will, for Scheme of Control purposes, be treated like any other purchase made by CLP in the process of providing its consumers with electricity. That is, it will be considered in exactly the same way as the purchase of coal, oil, or indeed electricity purchased from the Hongkong Electric Company Limited.

I turn now to the reasons why the nuclear option was chosen. Following a comprehensive joint feasibility study undertaken by CLP and the Guangdong Power Corporation it was concluded that the joint development of a nuclear power station in Guangdong was both technically and financially feasible.

After carefully considering the proposals that had been formulated in respect of the project, I announced that, subject to a satisfactory resolution of the fiscal and commercial terms for the project, the Government supported the participation of Hongkong interests in the joint venture project and reaffirmed that it would not object to CLP purchasing power from the nuclear plant.

The conditional nature of the endorsement given by the Government was deliberate. Arrangements for the purchase of electricity from Daya Bay had not, at that stage, been finalised. In the interest of consumers, the Government conveyed to CLP the view that further discussions should take place on the proposed fiscal and commercial terms.

After a year of intense negotiations, additional benefits for consumers were secured. These included: concessionary tax rates for the project; the introduction of a flexibility provision concerning the purchase of electricity; and, for the larger part of the electricity to be bought, a ceiling on the price that would be paid during the first six years.

It was on the basis of these successful negotiations that the Government, in January 1985, indicated to CLP and HKNIC that it had no objection to their entering into the contractual arrangements that had been agreed for the formation of the Joint Venture Company, and the purchase of electricity from the project.

Given the anxieties felt worldwide as a result of the Chernobyl disaster it was in no way surprising that deep and genuine concern should also be expressed in Hongkong about the safety of the plant at Daya Bay, some 50 km away from Hongkong. The Government fully appreciates the concern and realises the importance of providing information on the safety of the project.

Thus, in early May, immediately after the Chernobyl incident, the Government issued to this Council two information notes with a view to assuring Members that the Chernobyl incident would have no direct effect on Hongkong and also reminding Members of some of the safety considerations involved in the Daya Bay project.

In the debate on July 16, I said the Administration shared the general concern expressed by Legco members, and I indicated the steps we had been taking to urge all those involved in the project to take fully into account the concerns being expressed in Hongkong over safety matters. The fact-finding missions by Members were, of course, part of the process and the information obtained did much to reassure those who studied the report.

So now I shall deal with the report by the fact-finding delegations on their visits to the United States, Europe and Japan.

The report contains 50 observations, seven of which are directed at the Hongkong Government for consideration. These observations, which are all safety related, cover contingency planning, the need for closer cross boundary co-operation, a greater effort in providing information to the public, the need to set up an independent committee to advise on matters related to nuclear energy, and a suggestion that Hongkong should consider membership of the International Atomic Energy Agency (IAEA). The Government appreciates the significance of these seven observations and will seek to implement all of them in so far as it is practicable. Sir, I shall now give, in detail, the Government's comments on these seven observations.

The Government agrees with the first three observations which relate to contingency planning. The first observation is that a contingency plan should be drawn up for those areas which lie within 50 miles of the Daya Bay plant for protective measures in the event of radiological releases affecting Hongkong. (Ref 5.3.2.(1) of the report).

Although a number of contingency plans and a well-tried civil control system exist to co-ordinate all emergency services during accidents and natural disasters, the Government nevertheless accepts that, as a matter of prudence, a detailed contingency plan should be prepared to deal with the remote possibility of an accident at Daya Bay resulting in risks to Hongkong.

With this in mind, the Government, in mid-1985, engaged the United Kingdom Atomic Energy Authority (UKAEA) at Harwell to provide expert advice. Harwell's report providing guidance for the preparation of a detailed contingency plan is expected before the end of this year. Using the information provided in this report, and suitably adapting the well founded principles on which existing contingency plans have been based, an appropriate contingency plan to meet Hongkong's circumstances will be prepared. Once completed, it will be added to the range of contingency plans already held by the Government and will be regularly reviewed and kept up-to-date.

The second observation proposes that protective measures should be planned against the contamination of water supply, vegetables and other food and dairy products (Ref 5.3.2.(2) of the Report).

The Government already has certain contingency plans to deal with the disruption of food and water supplies, but these require adaptation in relation to the Daya Bay project. Accordingly, UKAEA will provide specialised advice as part of its consultancy on the contamination of water and food chains. This will enable detailed plans to be prepared which will augment or replace as necessary existing contingency plans.

The third observation is that a Government committee should be set up for the preparation of contingency plans (Ref 5.3.2.(3) of the Report). An existing inter-departmental working group, set up to co-ordinate strategy on the environmental issues arising from the Daya Bay project, will accordingly be specifically tasked to consider the preparation of detailed contingency plans. The working group, which is chaired by the Secretary for Economic Services, comprises representatives from Security Branch, the Electrical and Mechanical Services Department, the Medical and Health Department, the Royal Observatory and the Environmental Protection Department. Other branches and departments are consulted when the need arises.

The fourth observation is that a cross boundary agreement should be made with China to enable Hongkong to monitor radioactivity at close range, to exchange information and to co-ordinate contingency planning for Hongkong (Ref 5.3.3.(1) of the Report). The Government fully supports the suggestion that close co-operation between the authorities on each side of the border should be established to ensure contingency plans are suitably co-ordinated and to ensure Hongkong is provided with immediate notification of any accident at the power station. I might add that close and formal contacts have already been made with Chinese officials of the Guangdong Nuclear Power Joint Venture Company (GNPJVC).

During the past two years the Royal Observatory and GNP/JVC have been jointly involved in recording weather data at the Daya Bay site. Useful discussions have also taken place on radiation monitoring and the preparation of environmental impact and safety studies. These contacts will, of course, be further developed whenever necessary.

Once the nuclear power station has become operational a direct link between it and CLP's distribution control centre at Tai Po will be established. Furthermore, staff appointed by the Hongkong partner, HKNC, will be involved in the operations of the station. Thus it is difficult to imagine any serious incident occurring at the power plant without Hongkong becoming immediately aware of it through these contacts.

The fifth observation is that the Hongkong Government should strengthen its public information program to make information about nuclear energy and the effects of radiation available (Ref 5.3.4(1) of the Report). A program of public education activities is currently under preparation and a start to its implementation will be made in the near future in liaison with the programs to be launched by HKNC.

Meanwhile, it has been agreed with the Education Department that teaching the concept of nuclear energy should also be strengthened in the school curriculum. Two teaching/learning packages will be produced and made available to secondary schools for use in the academic year of 1986/87. These could be used in support of the existing Integrated Science curriculum (at junior secondary level) and the Physics curriculum (at senior secondary level). They could also be integrated as part of the general education programs for secondary school students. In addition, two educational television programs will be produced and made available to the schools.

The sixth observation is that the Hongkong Government should set up an independent advisory committee to advise on matters related to nuclear energy (ref 5.3.5(1) of the Report). The Government accepts that an independent advisory committee, dealing with certain aspects of nuclear energy including the formulation of proposals appropriate to Hongkong's needs and circumstances, might well be of value.

The Government will, therefore, give further careful consideration to setting up such a committee. However, as the references appended to this observation, the report refers to the independent advisory role of the Nuclear Regulatory Commission in the United States and the roles of the Atomic Energy Commission and Nuclear Safety Commission in Japan.

Having regard to the fact that these bodies are essentially concerned with the safe construction and proper operation of commercial nuclear power stations within their respective national boundaries, it would not be appropriate for Hongkong to contemplate establishing an advisory body with responsibilities similar to those of the three commissions mentioned.

The seventh observation concerns the International Atomic Energy Agency (IAEA). It is suggested that the Hongkong Government should not membership of the IAEA in order to maintain an international link with nuclear safety agencies and to obtain information and advice on nuclear safety (Ref 5.3.6(1) of the Report).

As the IAEA statute limits membership to states, it appears unlikely that Hongkong is eligible for full membership. Nevertheless, both the United Kingdom and China are members. Close contacts with IAEA have been established through the British Government. Indeed an agreement was entered into between the British Government and the IAEA on 4 February 1983 with the express purpose of providing technical assistance to the British Government on behalf of Hongkong.

Appropriate information and technical assistance from IAEA will continue to be made available to Hongkong through this channel. In addition, it is envisaged that from time to time the Hongkong Government will send observers to appropriate IAEA meetings, as part of a UK Government delegation. It was in this capacity that a Principal Assistant Secretary from the Economic Services Branch recently attended the special session of the IAEA General Conference in Vienna, which was convened to discuss general questions of nuclear safety.

Some members have continued to suggest that the Government should withdraw from this project or urge CLP to withdraw. For the reasons I stated on July 16 when we last debated this matter, I believe that any such action would be extremely damaging to the credibility not only of the Government but perhaps even more important to the credibility of Hongkong itself.

If our word cannot be relied upon in future, what chance do we stand in any commercial arrangements into which we might enter with other parties?

What would be the value of a Government guarantee that can be withdrawn? What is the significance of an approval that can be cancelled at the will of the Government? Where is the stability?

I have stressed that approval of this project was given after the most careful consideration and

nothing that has been said could possibly justify the withdrawal of that commitment. I do not for one moment believe that the majority of our community would wish to see Hongkong's international reputation placed in jeopardy by such a breach of faith.

I know that there is a wide range of opinion regarding this matter. Some are against all nuclear power and will not be convinced by any argument to the contrary.

Apart from that group, I hope that all who have listened to or read this speech will be ready to look at the issues on their merits

and accept that the Government has done all in its power to ensure that this project is as safe as it can possibly be made and that our participation is justified on economic grounds.

Finally, we believe that the arrangements that have been concluded do indeed sufficiently safeguard the long-term interests of the people of Hongkong. We believe that the information that I have given this afternoon coupled with what I said in the earlier debate, both to be augmented by the paper that I shall be leaving, will so demonstrate.

#### More Assurance Needed

Hong Kong SOUTH CHINA MORNING POST in English 16 Oct 86 p 20

[Editorial: "Verification Needed on Daya Bay Promises"]

[Text]

THE great debate on Daya Bay is over, and what has been achieved? Despite the cynics, a lot, but not as much as the Government would like us to believe. More assurances have been given, certain safety steps are to be taken, more facts are to be presented. The Daya Bay nuclear power station is to be built, and the controversy means it will probably be safer than originally proposed, and public opinion in Hongkong has shown it is not to be taken lightly. These are important developments. On the other hand, there is still a long way to go to put into place the verification machinery needed to ensure that the promises on safety of construction and operation are properly carried out.

Of the many speeches delivered in the Legislative Council last night, the most important was the 25-page address by the Financial Secretary, Mr Piers Jacobs. Apart from reiterations of previous assurances about safety measures, and a promise of more detailed information, it restated the Government's position, refused to divulge sensitive commercial information, accepted a number of the "observations" made by Legislative Councillors after their overseas trip, and fudged on some others.

As we have stated before, the building of Daya Bay has been a foregone conclusion. But it would be wrong to assume the debate has been a waste of time. On the contrary, it achieved some progress over safety matters. But the controversy has

always had more to it than public concern over safety. It has had political overtones, reflecting a degree of frustration among the general public about a system which in the final analysis was not accountable for the decisions it makes. The Government's failure to realise this contributed to the length and fierceness of the controversy after Chernobyl gave nuclear power a bad name. The Government took an inordinate time to realise that assurances mean little without verification, or to satisfy demands for further information.

Although Mr Jacobs was surprisingly light on real facts in his speech, he promised to present - hopefully soon - much of the information sought as to safety and electricity tariffs. This will not breach commercial sensitivity, but as long as the reasons why some information has been withheld are explained, it should satisfy those seeking further information on the financial aspects.

Mr Jacobs made the Government's position crystal clear on demands by some critics for it to withdraw from the project. The answer is no. The Government finds no reason that could possibly justify withdrawal. It points out that if it did withdraw, the action would be extremely damaging to the credibility of the Government and of Hongkong itself. We agree. If our word cannot be relied upon, if Government guarantees and approval can be withdrawn at will, where does this leave Hongkong? And the plant will be built regardless.

Which brings us to an important point on which the Government was less than totally forthcoming. The question of confidence, which Mr Jacobs properly stressed as a reason for commitment to Daya Bay, applies as strongly to the promises of safety of construction, operation and monitoring which we have been given. It is essential the public has total confidence that these promises will be properly kept and implemented. Simply saying it is not enough.

The Government has accepted some recommendations of the Legco fact-finding delegations. A contingency plan is to be prepared, including protective measures against the contamination of water and food, a government working group is to prepare plans and coordinate strategy, and increased attention will be given to public education.

So far so good, but Mr Jacobs fudged on several other important recommendations. The Government's reaction to the request for a cross boundary agreement with China for Hongkong to monitor radioactivity at close range, to exchange information and to coordinate contingency planning boils down to "close co-operation" and "useful discussions." A direct link will be established between Daya Bay and China Light and Power, but there is no certainty Hongkong will be able to monitor radioactivity at close range as

requested. The Government was asked to establish an independent advisory committee to advise on nuclear matters: this will receive "further careful consideration." One would have thought there had been enough time already to consider this, but Mr Jacobs says a body with responsibilities similar to the Nuclear Regulatory Commission in the US, or to the Atomic Energy Commission and Nuclear Safety Commission in Japan (which he says were essentially concerned with the safe construction and proper operation of commercial nuclear power stations within their respective national boundaries) was not appropriate. In other words, there is still no certainty that the independent means with which to verify the promises can be set up. China has yet to commit itself to involving Hongkong people in monitoring the construction and operation of the Daya Bay station, though Mr Jacobs said this was under consideration.

This newspaper has repeatedly stressed that this is the natural solution to the legitimate concerns of the people of Hongkong. If Hongkong demonstrates its good faith by adhering to the agreement, China can do no less than invite local participation in the monitoring of the many safety promises it has made. As the Government itself has stressed, confidence and stability is at stake.

/13046  
CSO: 5150/0043

HONG KONG

## GOVERNMENT SAID TO SUPPRESS NEGATIVE VIEWS OF IAEA

Hong Kong SOUTH CHINA MORNING POST in English 14 Oct 86 p 4

[Article by Albert Chan]

[Text]

THE Hongkong Government has been accused of deliberately suppressing "negative views" expressed on nuclear energy at last month's International Atomic Energy Agency (IAEA) conference in Vienna.

Leading local anti-nuclear campaigner Miss Trini Leung said there had been a campaign to withhold information, even though the Government had sent an observer to the conference.

To back her argument she released the text of the opening address at the conference, by Austrian Foreign Minister Mr Peter Jankowitsch, which attacked the use of nuclear energy.

Mr Jankowitsch told the conference, which was attended by top energy officials from the five big nuclear powers - United States, Soviet Union, China, France and Britain - as well as other Western nations, that the Chernobyl accident had proved that nuclear energy was unsafe.

"Chernobyl offers the world several urgent lessons. The first one is that nuclear energy is unsafe in its present operations," said Mr Jankowitsch.

### Important

"The Chernobyl accident has not been an isolated accident as it is sometimes portrayed. Rather, it is the worst in a series of nuclear accidents," he added.

The conference marked an important development in nuclear energy development as all member countries signed an unprecedented agreement promising earlier notification in case of an accident and mutual support to remedy such accidents.

Although the Hongkong Government is not a member of the IAEA, it sent Mrs Emmeline Mok, Principal Assistant Secretary (Economic Services Branch), to Vienna as an observer due to concern in the territory over the Daya Bay issue.

Miss Leung said the Government should report fully to the public on arguments for and against nuclear energy expressed at the IAEA conference instead of stressing only one side of the issue.

Miss Leung reported on her participation at the Anti-Atom International Conference, held as a protest in Vienna at the same time as the IAEA conference.

The anti-nuclear conference was attended by environmentalist groups and experts from around the world, notably Greenpeace and Friends of the Earth.

According to Miss Leung, Hongkong's fight against construction of the controversial Daya Bay nuclear project had drawn support from world environmental groups.

A lot of the groups taking part in the conference had agreed to write to the relevant governments - the Chinese, British, French and Hongkong as well as equipment

suppliers such as Framatome of France and GEC of Britain - to air their views and add pressure, said Miss Leung.

"The collection of one million signatures in Hongkong over the Daya Bay plant is unprecedented, other anti-nuclear groups told us," said Miss Leung yesterday.

"Some campaigners told us we have probably been staging the most successful anti-nuclear movement in the world."

She said in West Germany, which has a population of more than 60 million, the Government was obliged to call a referendum on an issue if one million signatures are collected.

Miss Leung has invited experts from various countries to explain the disadvantages of nuclear energy.

The first one will be a Japanese nuclear scientist, Dr Ichigawa, who will arrive in Hongkong on October 31 to hold a seminar.

Meanwhile the chief organiser of Hongkong's anti-nuclear movement, Mr Fung Chi-wood, said planned protests against the Queen's visit to Hongkong next week were cancelled because the Queen was not "the one to make decisions".

"She is only a symbol and we feel there will not be much point in protesting," he said.

/13046  
CSO: 5150/0044

HONG KONG

## DAYA BAY FACTFINDING REPORT CRITICIZED

Hong Kong HONGKONG STANDARD in English 6 Oct 86 p 1

[Article by Jessie Yim]

**[Text] A RESTRICTED Umelco "brief" for the Legislative Council delegation that went to Beijing last month shows there was widespread public discontent with the council's nuclear power fact-finding report.**

The fact-finding report was accepted by both Beijing and by many councillors, despite the severe denunciations the report received from the public.

The Umelco brief, a copy of which has been obtained by *The Standard*, contains letters and comments directed to the Legco fact-finding delegations that visited nuclear installations in America, Europe, and Japan.

It was these two delegations that prepared the report taken to Beijing.

Some of these comments, in rather emotional tones, denounced the report as irresponsible and ignored the worries of the public. They indicated the two fact-finding delegations had done a disservice to the public.

Veteran Executive Council and Legislative Council members, Miss Maria Tam and Mr Allen Lee, who led the fact-finding delegations, were

jointly denounced in one letter, and Miss Tam was singled out for personal criticism in another.

The fact-finding report taken to Beijing by the 11 member Legco delegation contained 30 "observations" intended as major points for discussion concerning safety measures of the Daya Bay nuclear plant.

More than 8,000 copies of the report were distributed in Hongkong first. A total of 31 representations — letters, comments and other forms of reaction — were received by the Umelco Office before September 16, less than 20 days after the report was released.

Apart from reactions from political groups and district board members, nearly half of those sent in were written by individuals or resident groups.

Of all the representations, roughly two-thirds contained adverse comment. Many of them contained detailed arguments.

One was written by the Institution of Fire Engineers, a professional group including the Government's fire engineering experts.

The letter said the report "lacks consideration on certain aspects such as pre-planning on fire-fighting operation, training to on-site staff and liaison with local fire authorities."

the Legco group she leads are "irresponsible and therefore will not be trusted any more."

The letter expressed extreme disappointment with the report, saying that the fact-finding delegations were over-presumptive that China would build the Daya Bay plant regardless of opposition.

The institution is an organisation dedicated to promote and improve "the science and practice of fire extinction, prevention and engineering."

However it also noted that "the importance of safety and emergency planning in the operation of generation plants has been recognised."

As for the reactions supporting the report, only three contained details illustrating the reasons.

Of the three, two were written by the Hongkong

Civic Association and the pro-China Hongkong Federation of Trade Unions.

On the opposition, three political groups submitted representations, namely the Joint Conference for the Shelving of the Daya Bay Nuclear Plant, the Hong Kong Affairs Society, and the organisation, Meeting Point. The Tsuen Wan District Board was the only DB to submit a position paper.

In a highly emotional letter from what claimed to be a group of technicians, Miss Maria Tam and Mr Allen Lee were condemned for ignoring the concerns of the public. The letter said both of them "were once our idols, especially when Hongkong was in a crisis over the future, but when the report was released, all were disillusioned."

Signatories of another said they felt Miss Tam and

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HONG KONG

## TEAM TO DISCUSS DAYA BAY WITH BEIJING RELEASES REPORT

Hong Kong SOUTH CHINA MORNING POST in English 4 Oct 86 p 3

[Article by Matthew Leung]

[Text]

BEIJING has made no guarantee that Hongkong people will have cheaper electricity after the six-year agreed price period of the future Daya Bay nuclear plant.

It has also hinted that an independent advisory body for the plant with Hongkong participation would have no executive power.

These observations were contained in a report released yesterday on the visit of Legislative Councillors to Beijing last month.

Eleven Legco members went to the Chinese capital for talks with Chinese officials and also visited various nuclear research institutes.

Councillors noted in their 37-page report that the Chinese Government was of the view that once the Daya Bay contracts were signed, there should not be promises made outside the terms of the contracts.

The Guangdong Nuclear Power Joint Venture Company (GNPJVC) had to discharge its contractual obligations.

China has entered into a guaranteed price agreement for Hongkong consumers over the first six years.

It is then expected that Hongkong's policy for public

utility charges - operational costs plus a reasonable profit margin - will be adopted.

As to the price in 13 years' time (seven years of construction and six years of a guaranteed price period), it would not be possible to make an accurate estimate, councillors were told.

However, the Chinese authorities believed that nuclear power should be cheaper than coal-fired power after the first six years of operation.

Chinese Vice Premier Li Peng also gave his support to the establishment of an independent advisory body with Hongkong participation.

Mr Li said it would advise on the safety and management aspects of the Daya Bay plant but it would be a body without executive power.

To ensure the long-term participation of the Hongkong Nuclear Investment Company in management of the plant, the post of plant manager shall be nominated by the HKNIC and appointed by the GNPJVC in the first five years after its commissioning.

In the second five years, the deputy plant manager will be nominated by the HKNIC

and appointed by the GNPJVC.

Future arrangements will be negotiated and agreed to by the two sides while the Chinese side guarantees that management personnel will comprise staff from the two companies.

Chinese officials said the task of allaying the worries and fears of the public would require long term effort but nuclear power generation was a science and would stand the test of time.

The GNPJVC will set up a public relations section to draw up a publicity campaign about nuclear energy.

It will also provide a brief report to the public on the progress of the construction project on a quarterly basis.

The Chinese authorities indicated that an emergency response facilities centre would be set up before the plant came into operation.

But since there would only be two full scale nuclear plants in China in the near future (the other will be in Qinshan), they would have to consider where and when to set up a national incident response headquarters.

But China said there would certainly be development in this direction after the two nuclear plants came into operation.

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HONG KONG

## DAYA BAY OUTSIDE AREA OF SEISMIC RISK

Hong Kong SOUTH CHINA MORNING POST in English 7 Oct 86 p 3

[Text]

THE Daya Bay nuclear power plant site is well outside the area of seismic risk, a visiting Chinese geologist said last night.

Mr Chen Tingguang, senior engineer of the Institute of Geological Science of Guangdong Province, said the area was carefully chosen as a nuclear power station site.

Speaking at a seminar organised by the Geological Society of Hongkong at Hongkong Polytechnic, Mr Chen stressed that the Dukeng area of Daya Bay (where the plant will be built) was not an area of the Earth's crust where medium to strong earthquakes were likely.

It was really an "island of safety", he said.

Mr Chen had taken part in investigations over the last few years in Guangdong for a suitable site for the nuclear plant.

He said several dozen sites in the province had been considered since 1978.

Through intensive data collection, analysis and on-site reconnaissance, Dapeng peninsula was chosen as the key district for detailed site studies.

He said investigation showed that Dukeng district on the eastern flank of Dapeng peninsula was the most suitable site for the nuclear plant.

Summarising, he said the crust in this area was about 27 to 30 km thick and was divided into upper and lower layers.

Dr M.J. Atherton, senior lecturer in Geology at the Hongkong Polytechnic, said some nuclear plants in Taiwan, Japan and California were built in areas where the danger of earthquakes was higher than at Daya Bay.

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HONG KONG

#### FISHERMAN WARNS OF EFFECTS OF DAYA BAY ON MARINE LIFE

Hong Kong SOUTH CHINA MORNING POST in English 14 Oct 86 p 4

[Text]

BEIJING was urged yesterday to pay special attention to the likely effects of the Daya Bay nuclear plant on marine life and the knock-on effect on the livelihood of fishermen.

The call came from Mr Philip Lai, chairman of the Joint Association of Hongkong Fishermen, who recently returned from Japan where he discussed the problem with academics and fishermen.

Mr Lai visited the Tokyo University of Fisheries and the Ikata nuclear plant in Shikoku and talked to fishermen there.

He said Japanese fishermen complained that fish died in waters near nuclear plants and warned that the fishing

grounds in the South China Sea might be polluted when the plant comes into operation.

Also, fewer fish would come to the area.

This would result in loss of business for the 100,000 Hongkong fishermen who are supplying 95 per cent of the local fish market, he said.

They would be hit hard and the price of fish would shoot up drastically, he warned. He also said there was a large number of fishermen in Guangdong province.

The Chinese Government should work out ways to compensate affected fishermen and fish farmers.

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CSO: 5150/0044

HONG KONG

## BUSINESSMAN TELLS SAVINGS TO BE ACHIEVED BY DAYA BAY

Hong Kong SOUTH CHINA MORNING POST in English 13 Oct 86 p 3

[Text]

AN ESTIMATED saving of \$30 billion will be achieved in 20 years after the commissioning of the Daya Bay nuclear power plant, the chairman and a director of the Hongkong partner of the joint venture company told the China News Service.

Mr Stephen Poon, a director of the Hongkong Nuclear Investment Company (HKNIC), told CNS the comparison between nuclear-generated and conventional coal-fired power was based on the difference in terms of costs, fuel price, interest rate, inflation rate, durability of the generating equipment as well as operation and maintenance costs.

Mr Poon said the calculations and analysis were verified by an overseas consultant firm. The analysis was done by China Light and Power Company before the Government approved its participation in the \$27 billion project.

China Light has a 25 per cent stake in the controversial project for which contracts for the construction, provision of loans from bankers and supply of equipment were recently signed and endorsed by the Chinese State Council.

In a meeting with a group of anti-nuclear activists in

August, Mr William Stones, chairman of HKNIC, said buying electricity from Daya Bay instead of a coal-fired plant in Hongkong would produce savings of \$33 billion during the first 20 years of operation.

CNS said the question of how China Light arrived at the saving had caused concern to the people in Hongkong, who wanted to know the methodology in calculations.

Mr Stones told CNS that customers and shareholders of China Light would benefit directly in the construction of the Daya Bay plant through the participation of HKNIC in which China Light had a share.

He said China Light's investment in the Daya Bay project did not come under the Government's scheme of control so the amount of investment in Daya Bay would not be calculated in the assets of China Light shareholders.

Mr Stones pointed out that China Light's plan was to secure a long-term supply of electricity to cope with the demand in the early 1990s. He said by 1993 - especially after the commissioning of the Daya Bay plant - supply of electricity would be sufficient to cope with the need in the mid-1990s.

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HONG KONG

## QUESTIONS OVER ECONOMICS OF DAYA BAY NOTED

Hong Kong SUNDAY STANDARD in English 12 Oct 86 p 5

[Excerpt]

The economics of the power station have been somewhat overlooked in the fear of a Chernobyl-type disaster.

Though it can be argued that the power station has very little to do with the economics of electricity generation — it was essentially a scheme to give China an economic interest in the future of Hongkong — it is on economic grounds that the project is being justified.

One point which Legco members and the public have missed is a hole in the six-year guarantee that the price of electricity sold to Hongkong will not be greater than that from conventional stations.

The fine print tells another story. Hongkong will buy 75 percent of the total output of 1,800 megawatts, but only two-thirds of that will carry the six-year guarantee.

This is spelt out in the power take-off agreement. The China partner in the GNJVC, Guangdong Nuclear Investment Company, takes 75 percent of the total output of which 30 percent is used locally and 45 percent sold to Hongkong. It is this share which carries the guarantee.

The 25 percent of total output taken off by HKNIC is "sold" to its parent

CLP for distribution here. No price is guaranteed.

This even prompted Mr Allen Lee to take up the economics of Daya Bay, after being in the forefront of those who damned opposition to the power station as alarmist.

What continues to concern councillors is the secrecy maintained over the economics of the project.

CLP's general manager William Stoney claims the cumulative savings will be \$33 billion compared to a conventional power station built in Hongkong. But nothing is offered to substantiate this.

Some councillors hope to rely on the Scheme of Control — the arrangement under which the power utilities' profits are limited to a percentage return on investment.

This is a vain hope. The scheme only applies to investment in Hongkong and does not extend to purchases of power from beyond the border.

CLP's Steven Poon said that "technically speaking" the scheme was a dead letter as far as HKNIC and Daya Bay went.

Dr Richard Lai told the Sunday Standard that if this was so, he might push for a complete review.

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HONG KONG

## BRIEFS

DAYA BAY OPINION SURVEY--The public is still worried about the safety aspects of the Daya Bay plant, according to a survey. Of the 1,141 respondents who took a stand on the issue, 23 percent said the station should not be built, while 39 percent wanted to have the project postponed until more data on its safety measures were available. Another 35 percent said the authorities should adhere to their schedule. Less than 35 respondents believed that the project should go ahead as planned and there was no need for further safety information. The poll was conducted by the Marketing Decision Research Company during September 1 and 20. During the survey period, two Legislative Council fact-finding delegations went abroad to study nuclear plants in Japan, Europe and the US. "But the poll results show no change in public attitude during September," said Mr. David Bottomley, the director of the survey.  
[Text] [Hong Kong HONGKONG STANDARD in English 8 Oct 86 p 2] /13104

DAYA BAY FORMALITIES--The Guangdong Nuclear Power Joint Venture Company yesterday issued authorisation documents to the four main suppliers involved in the Daya Bay nuclear plant, following formal approval of the contracts by the Chinese Government. According to a press release issued by the company, the Ministry of Foreign Economic Relations and Trade has approved the four main contracts signed on September 23 in Beijing. These are for the supply of a nuclear island, fuel assemblies, a conventional island and project services, as well as related loan agreements. To make the contracts effective yesterday, the joint venture company also issued authorisations to proceed to the foreign contractors. These "represent a new phase for the Guangdong nuclear power station which will be constructed in accordance with the quality, schedule and budget of the various contracts", the company said.  
[Text] [Hong Kong SOUTH CHINA MORNING POST in English 8 Oct 86 p 2] /13104

DAYA BAY 'WATCHDOG' COMMITTEE--The Legislative Council is to set up a watchdog committee to monitor the Daya Bay nuclear project. This follows the dissolution yesterday of its fact-finding delegations to Europe, the US, Japan and China. The group will monitor progress on the plant and discuss the future electricity tariff with the relevant authorities, including China Light and Power Co. Speaking after a Legislative Council in-house meeting yesterday, Professor Poon Chung-kwong said councillors were unanimous about forming the group. At least 19 members will speak on the Daya Bay debate on October 15, which will be moved by the Senior Unofficial, Miss Lydia Dunn. Members also agreed Legco should hold monthly adjournment debates on public

issues. On October 19, they will debate public housing rental policies; services for the elderly on November 12; and education on December 10. [Text] [Hong Kong SOUTH CHINA MORNING POST in English 4 Oct 86 p 3] /13104

**CUSTOMS RADIATION CHECK**--The Municipal Services Branch is keeping a watch on food imported from Europe, checking on radiation levels in the wake of the Chernobyl disaster. Hygiene adviser Dr Ronald Perry said safety standards being used in Hongkong were those set down by the European Economic Community and they were higher than the ones being used by some other countries in the region. Before the Chernobyl incident, said Dr Perry, only occasional checks had been made on the radiation levels of imported foodstuffs but since the disaster they had been stepped up more than a hundredfold. Physicists in Hongkong even checked foodstuffs that were accompanied by health certificates issued by their country of origin. Dr Perry said he was not satisfied unless scientists in Hongkong were content that the imports did not contain dangerous radiation levels. Only "very insignificant" levels of radiation had been found in the imported foodstuffs so far. But Dr Perry stressed that when levels of radiation were found that came even close to the limits set down the imports were set aside and not allowed into the territory for consumption until scientists were satisfied they presented no risk. Products most susceptible to radiation were those derived from the soil which included all animal and vegetable products, said the doctor. Special care was taken with products for consumption by infants and a watch was kept on imported dried milk and other dairy produce. [Text] [Hong Kong SOUTH CHINA MORNING POST in English 4 Oct 86 p 3] /13104

**CONVENTIONAL POWER URGED**--The Daya Bay nuclear project will be about 40 percent more costly than conventional options of power generation, an Eastern District Board member has estimated. Mr. Shek Kwei-chun yesterday urged the Chinese authorities to consider turning the Daya Bay nuclear power station into an ordinary coal-fired one. "Based on the limited data available, my projection is that the Daya Bay plant will be far more costly to run than a coal-fired plant in the first 20 years of operation," he said. According to Mr. Shek, disposal of nuclear wastes, interest rates charged on the project and the rate of depreciation of the nuclear facilities were all undesirable factors in the HK\$ 27 billion investment. He said his demand for shelving the nuclear plant was reinforced by the findings of a recent study of residents of 15 districts. About 78 percent of the 3,700 respondents to the poll said they wanted the Daya Bayt plant changed into a coal-fired station. [Text] [Hong Kong SUNDAY STANDARD in English 5 Oct 86 p 3] /13104

CSO: 5150/0041

JAPAN

GROUP TO MONITOR RADIATION AROUND U.S. BASES IN JAPAN

CW240303 Tokyo KYODO in English 0245 GMT 25 Oct 86

[Text] Tokyo, Oct. 24 KYODO -- A group of engineers has developed a small, lightweight, low-cost geiger counter which accurately gauges radiation levels and emits a warning if gamma rays in the air exceed a dangerous level.

The machine is the brainchild of Tau Engineering Co. in Yokohama, a firm set up by former trade union members of Toshiba-Ampex Corp., a Japan-U.S. high-technology joint venture.

A citizens group, the "Kyogaku-sha" in Midori ward, Yokohama, plans to place the instruments near nuclear power stations, radioactive material dumping sites and U.S. military bases in Japan to form a nationwide radiation alert network at some 1,000 locations.

It is suspected that nuclear weapons may have been deployed at U.S. bases in Japan although government policy bans the production, possession and introduction of such arms.

The group's spokesman, Tetsuo Iesaka, said the Chernobyl nuclear power station accident in the Soviet Union in April prompted group members to produce a readily available radiation counter. Priced at 80,000 yen per unit, the instrument, dubbed the radiation disaster alert network (R-DAN) counter, is much cheaper and easier to handle than conventional geiger counters, Iesaka said. Prof. Yuko Fujita at Keio University, one of users of the 400-gram instrument said, "It's reliable 100 percent."

The new geiger counter is on display at a Japanese industrial fair now under way in Moscow, and Japanese trading companies are interested in exporting the product to Europe, Iesaka added. The group has already received orders for more than 30 R-DAN counters, according to the spokesman.

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CANADA

## CANADIAN PEACE MEET TAKES UP NUCLEAR, ARMS CONTROL ISSUES

### 8 November Meeting

Toronto THE SUNDAY STAR in English 9 Nov 86 pp A1, A15

[Article by Gordon Barthos]

[Text]

EDMONTON — Canada's peace movement must launch a crusade to "get nuclear weapons and nuclear-related junk" out of the country, Toronto peace activist Bob Penner told 5,000 people here yesterday.

"This country and our leaders are keeping quiet (about Canada's tie-ins with the U.S. nuclear arsenal) at the very moment they should be shouting," Penner said to enthusiastic applause.

"They're dabbling when they should be leading. They're studying when they should be acting and they're acquiescing when they should be rebelling."

Penner called on Ottawa to stop allowing the testing of U.S. cruise missiles over Canada immediately.

He also urged Ottawa to "take a risk" and publicly support Soviet proposals in Geneva to cut ballistic missiles by between 30 and 50 per cent, to shore up existing arms control treaties, and to get U.S. support for a moratorium on nuclear tests.

Penner is co-ordinator of the Canadian Peace Alliance, a grouping of 300 organizations. He was the most warmly received speaker

yesterday at the *True North Strong and Free?* conference on Canadian sovereignty and defence policy.

Conference organizer Mel Hurtig, chairman of the Council of Canadians, was delighted by the turnout.

People had to brave snow, -18 C (0 F) temperatures and frigid winds to attend the conference, held at the University of Alberta's "Butterdome" sports complex.

The huge turnout will show Ottawa politicians just how much public interest there is in ending the arms race and in seeing Canada develop a more independent stance on defence issues, Hurtig told reporters yesterday.

That sentiment was echoed repeatedly at yesterday's conference.

□ Disarmament Ambassador Doug Roche set the tone of the meeting by saying that no country is better suited than Canada to "give leadership to the world" by promoting arms control.

□ Dorothy Goresky, past-president of Physicians for Social Responsibility added a warning to Roche's comment.

"We seek security in the very thing that will destroy us," by rely-

ing on nuclear weapons to keep the peace, she said.

The challenge for peace activists, she added, is to "choose leaders who will effect change in the way we believe it should go."

□ Geoffrey Pearson, executive director of the Canadian Institute for International Peace and security, called attention to a growing problem for the Mulroney government: The "gap between what governments think and what a lot of people think" about the likelihood of a nuclear war breaking out. The politicians don't expect one, but many voters do, he said.

Throughout yesterday's sessions, speakers and members of the audience repeatedly criticized the Mulroney government for its defence and arms-control policies.

The criticism comes as Defence Minister Perrin Beatty prepares Canada's first major review of defence policy since 1971.

Ottawa was described as being too timid to criticize the U.S. military buildup, Star Wars missile defence research and lack of interest in negotiating arms control agreements.

Ottawa was also censured for being too secretive in its defence agreements with the United States, including the recent renewal of our major defence pact.

Finally, the federal government was criticized for playing too active a role in the U.S. military machine.

Canada has phased out the last of its own nuclear weapons, yet we continue to help the U.S. test its unarmed cruise missiles here, Penner said.

We also allow nuclear-armed U.S. warships into our ports, accept U.S. plans to disperse bombers here in time of crisis, and help test numerous U.S. nuclear-capable weapons, Penner said.

Penner's remarks did not go unchallenged.

"Declaratory proposals and quick fixes proliferate in public debates such as this one," said Ralph Lysyshyn, a key spokesman for the Mulroney government on arms control.

"But experience has shown us that that no meaningful arms control measures have been achieved and sustained outside the negotiating framework" at places like Geneva, where progress is slow and often elusive.

"Megaphone diplomacy," of the sort advocated by many critics of the government, he warned, can be "dismissed out of hand," by the superpowers.

Lysyshyn, who was peppered with hostile questions, is director of the arms control division of the external affairs department.

Brig.-Gen. Don Macnamara, meanwhile, defended Canada's role within the North Atlantic Treaty Organization and the North American Aerospace Defence command as vital to our security and national sovereignty.

The Canadian Forces, Macnamara said, are "Canada's oldest and largest peace movement."

In a world where no fewer than 43 wars are being fought, Canadians should recognize that our defensive alliances have helped to preserve the peace between the superpowers for more than 40 years.

Macnamara was accompanied by a number of senior officers who mingled with the civilian audience answering questions about military policy.

9 November Session

Toronto THE TORONTO STAR in English 10 Nov 86 pp A1, A15

[Article by Gordon Barthos]

[Text]

**EDMONTON** — Prime Minister Brian Mulroney's government has been urged to cancel its limited support for U.S. Star Wars research.

The call yesterday came from 3,000 delegates attending a conference here on Canada's defence policies and national sovereignty.

They also urged the Progressive Conservative government to:

- Weigh the benefits of turning Canada into a "neutral" or non-aligned country;
- Halt cruise missile tests if the U.S. breaks current arms-control deals; and
- Lean on Washington to embrace a Soviet nuclear test moratorium.

Delegates also voted down a double-barrelled motion to support Ottawa in maintaining "an adequate defence capability" and in continuing to work within traditional Western alliances to promote nuclear and conventional arms control.

#### Arctic submarines

The votes, carried to hearty applause, were among 11 appeals and messages directed to the Tory government to mark the end of a two-day debate on Canada's defence policy and national sovereignty.

In total, more than 5,000 people attended the unprecedented meeting, organized by the Council of Canadians and the Edmonton chapter of Physicians for Social Responsibility. Initially, 500 were expected.

Before refusing to endorse an "adequate" defence for the country, participants complained that the term "adequate" was too vague to be meaningful. They

noted that a major thrust of the meeting had been to question our traditional military links with other Western countries, including the United States.

The meeting also voted down a proposal that Canada acquire submarines capable of operating in Arctic waters and safeguarding our sovereignty. Questions were raised about whether the subs would have to be nuclear-powered, something many participants rejected.

"People strongly want alternative policies," Edmonton publisher Mel Hurtig said as the meeting ended. Hurtig is chairman of the Council of Canadians.

The public is worried about the nuclear arms race, Canada's geographic position between the superpowers and the federal government's policies on defence and arms control, Hurtig said.

"People like the idea of being involved in important matters," instead of being shut out of government defence decisions, he added.

Hurtig predicted that the Edmonton meeting will spur similar meetings in other communities, and said that they would play an important role in shaping public opinion before the next federal election.

Other meeting resolutions included:

- That Ottawa stop testing cruise missiles here if the United States exceeds the limits on missiles contained in current arms-control agreements. The U.S. has served notice that it may exceed those limits later this month.

This resolution, too, proved controversial. Many at the meeting wanted cruise tests banned outright, and were unhappy that a more moderate resolution had found its way on to the agenda;

- Ottawa should establish an arms-length commission to explore "alternate security possibilities" for Canada, including non-alignment and neutrality. The commission would hold public hearings and report to Parliament;
- Ottawa should endorse the Soviet nuclear test moratorium, and urge the U.S. to respond in kind;
- Ottawa should actively press both superpowers to negotiate upper limits on all categories of cruise missiles, which at present are largely unconstrained by arms control pacts;
- External affairs should be required to report to Parliament on the nature, quantity and destina-

- tion of all Canadian arms exports;
- Ottawa should set up an international "crisis management centre" with a view to reducing the risk of accidental nuclear war;
- Ottawa should participate more actively in future conferences;
- Ottawa should restore the Canadian Broadcasting Corp.'s full funding to allow the CBC to upgrade its world coverage and to provide "clear windows on the world."

Earlier yesterday, George Ignatieff, former chancellor of the University of Toronto, received a standing ovation when he argued that Canada needs to develop a "strategy of survival" instead of relying on the threat of nuclear reprisals to keep the peace.

Canada can't realistically opt for neutrality, as military historian Gwynne Dyer proposed Saturday, Ignatieff said.

In a three-party political debate that followed Ignatieff's remarks, participants to the conference heard sharply conflicting views on Canadian defence policy.

#### Further Details

Toronto THE GLOBE AND MAIL in English 10 Nov 86 p A4

[Article by Matthew Fisher]

[Text] The 4,000 participants at a weekend conference on peace voted to ask the federal Government to establish an independent commission to examine alternative security policies, including the possibility of non-alignment.

The two-day meeting, entitled The True North Strong and Free?, adopted a resolution calling on Canada to endorse the Soviet moratorium on nuclear tests and to ask the United States to respond in kind. It also urged that Canada rescind its cruise missile test agreement with the United States and seek an arms-control pact that would regulate all

categories of cruise missiles.

The delegates also concluded Canada should withhold all support for the U.S. strategic defence initiative, known as Star Wars. Motions to "maintain an adequate defence capability" to protect Canadian sovereignty and to acquire submarines and other forms of underwater surveillance for the Arctic were defeated.

Brig.-Gen. Donald Macnamara, of the National Defence College in Kingston, Ont., was one of five senior officers who attended the meeting, as did a representative from External Affairs and members of Parliament from the three political parties.

Many speakers objected to U.S. influence over Canadian foreign policy, including Canadian Labor

Congress president Shirley Carr, Robert Penner, co-ordinator of the Canadian Peace Alliance, and William Arkin, of the Institute for Policy Studies in Washington, D.C.

For the most part, the two-day debate, organized by publisher Mel Hurtig, was civil — although Ralph Lysyshyn, director of the arms control division of External Affairs, was jeered for not replying to a question equating North Atlantic Treaty Organization policy on a nuclear first strike with Nazi concentration camp ovens.

At a news conference later, Mr. Lysyshyn said that "some people wanted an inquisition," and he had expected it.

"A lot of people are here because they disagree with the Canadian approach to defence," he said, adding that the conference was worthwhile, which was why External Affairs had contributed to it financially.

In his speech on Saturday, Mr. Lysyshyn defended Canada's position in NATO and NORAD, as well as its voting record on nuclear disarmament and other military issues at the United Nations and other international gatherings. He said that if there is "a fairly strong congruence (with) U.S. votes, it is largely because we share many of the same values."

Gen. Macnamara described the strong military presence at the meeting as a departure for the Canadian Forces. "What you're seeing is an incremental process. A change in our participation is being encouraged."

He told delegates that Canada is, for practical purposes, a nuclear-free zone, while the Soviets have nuclear bases in its North.

Unilateral declarations are meaningless, he said. By belonging to

military alliances, Canada has a voice when important military discussions are held.

George Ignatieff, University of Toronto chancellor and a former Canadian ambassador, was applauded when he urged that organizations such as the North American Aerospace Defence Command be changed so that civilians control decision-making processes.

"There should be no incineration without representation," he said.

Scientist David Suzuki, who resolutely opposes the SDI project, said that a major problem is "scientific illiteracy on the part of politicians," of which President Ronald Reagan is a classic example.

"Here is a man who grew up in a time long before there were computers, television, jets, rockets, satellites or nuclear bombs," Dr. Suzuki said. "He is making major commitments to SDI because he was nurtured on Buck Rogers comics."

Geoffrey Pearson, executive director of the Canadian Institute for Peace and Security and a former ambassador to the Soviet Union, said that a public inquiry into defence matters could not be held in Moscow but that there is evidence the Soviet Union is becoming more open.

CANADA

CANADA: 'PROJECT PLOUGHSHARES' URGES TEST-BAN TREATY

Toronto THE TORONTO STAR in English 28 Oct 86 p A10

[Text] OTTAWA (CP) — Canada should "take the initiative" and publicly push the United States to negotiate a comprehensive nuclear test ban with the Soviet Union, says a coalition of 20 churches and anti-nuclear groups.

Project Ploughshares' political affairs co-ordinator Simon Rosenblum said yesterday there has been "some lessening" of traditional Canadian support for such a ban, and that the government of Prime Minister Brian Mulroney has been "a little bit soft" on concrete action.

Liberal external affairs critic Donald Johnston and New Democrat Pauline Jewett, in letters released yesterday by Project Ploughshares, reiterated their parties' support for an immediate moratorium on nuclear tests by both superpowers, and an eventual comprehensive ban.

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CSO: 5220/10

ARGENTINA

NUCLEAR PROGRAM SAID CAPABLE OF ATOMIC BOMB

PY052232 Sao Paulo FOLHA DE SAO PAULO in Portuguese 4 Nov 86 p 6

[Article by Clovis Rossi]

[Text] Argentina has already produced sufficient plutonium to manufacture two or three atomic bombs at the Ezeiza nuclear complex alone. And each of these bombs will have the same power as the bomb that the United States dropped on the Japanese city of Hiroshima in 1945, causing the death of 140,000 people.

These data were supplied by Vice Admiral Carlos Castro Madero, retired, a former president of the National Commission for Atomic Energy [CNEA], in a recent interview he granted to the magazine MARCHA. He said that Argentina is in a position to build its own nuclear bomb and thus join the exclusive club of nuclear powers.

These same data have aroused suspicion about the Argentine nuclear program. As a matter of fact, there has been suspicion about this program, which started in the 1940's, since the dedication in 1974 of its first tangible achievement: the Atucha-I nuclear plant (110 km from Buenos Aires). That same year, U.S. nuclear proliferation expert John Redick of the Stanley Foundation warned in an article published in THE WASHINGTON POST: "Argentina has the scientific capability of very soon becoming a member of the exclusive nuclear club."

Nine years later, in 1983, Redick's warning gained higher levels of probability: In November 1983, Castro Madero, then president of the CNEA, reported that Argentina had mastered the nuclear fuel cycle at the secret Pilcaniyeu installations (2,300 km southwest of Buenos Aires), and was, theoretically speaking, in a position to manufacture the atomic bomb.

Now, once the fuel cycle is mastered, and the eminently political decision is made to manufacture the bomb, it is only a matter of time before one is built, and this time is measured in terms of weeks, a few months at the most. This means that in 3 years, Argentina might have its own bomb. The problem is knowing whether or not the political decision has been made.

Whenever questioned on the subject, the Argentine Government replies with a solemn denial and with declarations that the Argentine nuclear program is exclusively peaceful. This answer is predictable. Not even Israel, which was caught red-handed by the British newspaper THE SUNDAY TIMES, admitted that it had the bomb. The newspaper quoted an Israeli nuclear program technician.

Castro Madero, an International Atomic Energy Agency consultant currently working for the Argentine Foundation for consultant currently working for the Argentine Foundation for Education, Science, and Culture, gave assurances that President Alfonsin has not made the decision to build the bomb.

The author of this article has confirmed that when it assumed power in 1983, the constitutional Argentine Government did not intend to continue any experiments on the military use of nuclear energy. The day Castro Madero announced that the nuclear fuel cycle had been mastered, a PMDB [Brazilian Democratic Mobilization Party] delegation headed by Ulysses Guimaraes arrived in Buenos Aires to meet with President-elect Raul Alfonsin the next day. Foreign Minister designate Dante Caputo (who still heads the Argentine Foreign Ministry) gave the author of this article a ride to Ezeiza airport. During the 40-minute ride, the informal discussion focused on Castro Madero's announcement. Caputo was very annoyed because he thought the objective of the announcement was to destabilize the newly elected government, which had not even been installed. He said that Alfonsin would not give a cent to the CNEA to continue the experiments that might lead to the construction of a bomb.

Ambassador Jorge Sabato, one of Alfonsin's closest friends, was designated Foreign Ministry under secretary, a position equivalent to that of a deputy foreign minister. Sabato and Brazilian Senator Fernando Henrique Cardoso, a member of the delegation headed by Guimaraes, have made similar statements on the subject.

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CSO: 5100/2036

BRAZIL

FORMER NUCLEAR OFFICIAL PROTESTS MILITARY ROLE

PY130216 Sao Paulo FOLHA DE SAO PAULO in Portuguese 11 Nov 86 p 16

[Article by correspondent Armando Ourique in Rio de Janeiro]

[Text] President Jose Sarney last month signed a decree subordinating the CNEN [National Nuclear Energy Commission] to the Office of the Presidency. In fact, however, that decree brought Brazilian nuclear policy planning under the control of the military cabinet, which can now set priority on completing the construction of the Angra II nuclear plant or on the construction of a nuclear submarine, the technology for which is being developed at the CNEN research department, which coordinates the parallel (read military) program.

This was the main reason civil and nuclear engineer Xamuset Campello Bittencourt resigned from his position as executive director for the security area and as a member of the CNEN deliberative council on 31 October. Campello Bittencourt left the positions he had occupied for 4 years at the CNEN to support suggestions from the Nuclear Program Evaluation Commission that the CNEN should be divided.

Campello Bittencourt believes that research activities must be transferred from the CNEN to Nuclebras and that nuclear installation safety must remain under the CNEN. Safety should be monitored by a collegiate body, some of whose members should be representatives from universities, which should be accountable and subordinated to a national Congress committee. Since 1967, Campello Bittencourt has worked at the CNEN, the Furnas Electric Company, and Nuclebras.

FOLHA: Why did you resign from the positions you held at the CNEN until 2 weeks ago?

Bittencourt: The committee in charge of evaluating the nuclear program recommended that the CNEN be divided into two organs. One of them to deal with nuclear research and development and the other to operate as a regulatory agency in charge of establishing operational standards and safety regulations. However, a decree issued in the 2d week of October subordinated the CNEN to the presidency, shifting control from the Mines and Energy Ministry. The area of nuclear safety and protection against radiation is specifically technical. The decision to subordinate this area to the presidency had given some hope for independence. However, we found out that we are subordinated to the National Security Council. Decree-Law 1,909, dated 7 October 1980, established a protection system that placed nuclear safety and protection against radiation under the jurisdiction of the National Security Council. Now that the CNEN has been transferred to the presidency, the CNEN's subordination to the council has become even stronger.

Thus, we are linked to a military organ and we see no reason for this. The recommendations issued by the evaluating committee must be followed if they are to yield any results. This means that nuclear security must be subordinated to the presidency, and that another organ must be in charge of research and development.

FOLHA: Considering that the presidential decree has not split the CNEN, to which group of presidential advisers will the CNEN be subordinated?

Bittencourt: In one word, to the National Security Council and to the military household. (General Rubens Bayma Denys is both the secretary general of the National Security Council and the chief of the military household). Consequently, the nuclear program is now under the military household.

FOLHA: Do you believe that the decree issued in October has strengthened Armed Forces control over the CNEN research area, in which the parallel program is being developed?

Bittencourt: Who makes the decisions in a parallel program? I believe that the CNEN's research activities should be transferred to Nuclebras (instead of remaining under the CNEN and, as such, under the military household). There is a nuclear program being developed by Nuclebras, which is legally responsible for the fuel cycle. The nuclear program should be a single unit. I do not see why part of it should go to Nuclebras and the rest remain within the CNEN. Nuclebras must be capable of developing the nuclear program to produce electric power from nuclear sources.

I do not know who is planning the parallel program. The parallel program is tied to the Navy program. By the way, I believe that the Navy program, the purpose of which is to build a nuclear submarine, has shown that Brazil is capable of developing its own nuclear technology provided the funds and determination exist to attain the objective. I believe Nuclebras does have this capacity.

FOLHA: Are you concerned over the fact that since the CNEN is actually subordinated to the military household, the latter might give orders on priority goals in military and nuclear areas, without due consideration to technical criteria?

Bittencourt: Yes, I am. The way things are, this concern is justified. Who designs the nuclear policy? The CNEN is legally charged with advising the presidency on nuclear matters. The decree has tied the CNEN to the military household. Who will then design the parallel program? I think there is concern over this point. And there are other economic factors as well. Nuclebras has its own program. It is slowly building Angra II, and its investments might even be lost, considering there is equipment in storage. It is necessary to conduct a study to identify the investments that must be given priority treatment.

FOLHA: What is the top objective of the presidency and the military household? Is it Angra II and the generation of electric power from nuclear sources, or is it the parallel program?

Bittencourt: The Nuclebras program is subordinated to the Mines and Energy Ministry. The Planning Ministry grants the funds for Angra II. The parallel program is funded by other sources. The funds for the parallel program come from the CNEN and probably from the Navy, which is conducting a program for the construction of a nuclear submarine. This is a military program. The subordination to the military household has thus placed a military program under the CNEN.

FOLHA: What are the other areas of the parallel program?

Bittencourt: The parallel program involves the development of materials, instruments, and all the components that might be necessary for a national program. It is necessary because the developed countries have banned the exportation of technology that might allow Brazil to become self-sufficient in this area. Consequently, it is necessary to produce these materials here.

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CSO: 5100/2037

BRAZIL

CNEN SPECIALIST DENIES LWR MORE DANGEROUS THAN CHERNOBYL TYPE

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 28 Sep 86 p 22

[Text] Rio--The probability of a reactor such as that of Angra I becoming an atomic bomb was considered to be 1 million to 1 by the National Nuclear Energy Commission (CNEN) reactor division team refuting the allegation of U.S. specialist Richard Webb to the effect that the Western World's light-water-cooled plants are more dangerous than that in Chernobyl and could explode like an atomic bomb without any warning as a result of the fission of plutonium in various compact mass packets.

The CNEN team comprised of Jose Eduardo Leme Salvatore (director of the reactor division), Jose Mendonca de Lima (responsible for the licensing of Angra I), Luiz Alberto Arrieta (specialist in the probability analysis of safety and accidents), and Clotilde Moreira de Pina (specialist in analysis of the reactor nucleus), showed that it would be practically impossible for an event such as that described by Richard Webb to occur and, even if an accident such as that in Chernobyl should occur with the release of radioactivity into the atmosphere, Sao Paulo and Rio de Janeiro would be better protected than the city of Kiev, 130 kms from the reactor accident site, for example.

The CNEN'S specialist in accident probability analysis, Luiz Alberto Arrieta, said that the Angra I reactor, with 5 centimeter-thick sheet steel shielding and a concrete building with walls 60 centimeters thick, is designed to withstand the meltdown of the nucleus. According to him, Chernobyl does not have a containment vessel and the reactor is protected only by an industrial building.

Arrieta explained that in the hypothesis of a thermal accident in which a conventional plant could explode, the water in the primary system would evaporate in a temperature of 290 degrees Centigrade and at 2,300 pounds of pressure, the equivalent of four atmospheres. That steel shielding was designed to withstand that pressure and that temperature.

In the hypothesis of the meltdown of the nucleus, the temperature would rise to 5,000 degrees Fahrenheit, or 2,800 degrees Centigrade, forming an incandescent magma that would pierce the reactor's base, penetrating the ground to a depth of up to approximately 8 meters. He guaranteed that the

"China syndrome" theory, according to which that ball of incandescent irradiated material could go through the earth's crust and reach China is pure myth.

According to Arrieta, tests conducted at PWR reactors in the desert of Idaho in the United States showed that that incandescent magma cools, exchanging heat with the ground when it reaches a depth of 8 or 9 meters. In the Three Mile Island reactor, the meltdown took only one-third of the reactor because the operators managed to activate the emergency cooling [system], interrupting the process of complete meltdown of the nucleus.

In case of an accident at the Angra I plant, the cube-shaped steel shield does not protect the ground side, unlike the German PWR system in which the shield is spherical and covers 100 percent of the reactor. Thus, in the event that a meltdown of Angra's nucleus should occur, the incandescent magma would pierce the concrete base and could reach a depth of 8 to 9 meters.

According to Arrieta, the possibility of an atomic bomb-type explosion would be almost impossible: 1 million to 1. That probability would occur in case the incandescent magma broke up into millions of droplets and those droplets encountered water. The temperature of those droplets would be so high that on coming in contact with the water they would cause immediate evaporation with explosive pressure.

#### The Case of Plutonium

Plutonium was also studied in the United States in the range of probable accidents with PWR reactors and it was determined that that element is spread over a space of 4 meters high by 2.5 meters in diameter, distributed over 28,000 little rods, in the case of a reactor of the Angra I type. That nucleus contains 60,000 kilos of uranium and approximately 30 kilos of plutonium. Five kilos of plutonium are enough to make an atomic bomb.

But in order for that atomic bomb to explode, those 5 kilos of plutonium must form a single critical mass containing only plutonium 239 and 240, which are the fissionable ones. That mass must be homogeneous in the case of the atomic bomb, while in the reactor it is spread out in small portions and distributed over a large physical space. Even with the meltdown of the nucleus, those 39 kilos of plutonium will be mixed with uranium, cast iron, and other metals, without the possibility of forming the critical mass of the atomic bomb.

According to the CNEN experts, the majority of those events have theoretical simulations and the "probability of a PWR plant exploding like an atomic bomb is the same as that of meteorite falling on our head." In the case of a Chernobyl-type accident, with the release of radioactivity into the atmosphere, if it were raining 99.6 percent of the radioactivity would remain within a radius of 3 kilometers.

In case the prevailing winds were in the direction of the sea, the contamination would affect fish and fishermen, besides the sea water. In the hypothesis of normal winds, or 7 kms per hour, it would reach Angra dos Reis,

situated 15 kilometers from the reactor in 2 hours. In that case, everything would depend on the emergency plan. If it works, the population will be evacuated in less than 2 hours. Otherwise, that population can receive doses of radioactivity identical to those that were received by the population in the proximity of Chernobyl.

But for Rio and Sao Paulo, the danger is less than the one that was run by the city of Kiev, 130 kms from Chernobyl, with 1.5 million inhabitants, who did not have to be evacuated at the time of the accident. Jose Mendonca de Lima, responsible for the licensing of Angra I, pointed out that the Indian Point plant is 30 kms from New York, near Manhattan, with three reactors identical to that of Angra I in operation, and that the U.S. authorities do not even have an evacuation plan for that city of 10 million inhabitants. In case of an accident, the most that is planned for the Indian Point area is that the people stay home and take potassium iodide tablets to saturate the thyroid to prevent cancer from the radioactive iodine that would be released.

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CSO: 5100/2016

BRAZIL

OFFICIAL SOURCES CONFIRM NUCLEAR SUB DEVELOPMENT PROGRAM

Sao Paulo ESTADO DE SAO PAULO in Portuguese 5 Sep 86 p 5

[Text] The Brazilian nuclear submarine construction project has been made technologically feasible: the construction of a prototype centrifuge designed to enrich the uranium for the submarine's reactor has already been completed. That information was given to ESTADO reporter Helio Contreiras yesterday by a high-level government source. In his Rio office, Navy Minister Admiral Henrique Saboia refused to give any details about the report, alleging that the research is secret, but he said: "We do not have the right to give up such a project: to have a nuclear submarine in the future." Meanwhile, he stressed that the project concerns the construction of a submarine and not an atomic bomb.

According to the government source, the project is even further advanced than the stage reported by the press, and the construction of the first prototype centrifuge has already guaranteed the conditions for Brazil to develop the technology to get its nuclear submarine, which also requires a national capability in the construction of that type of naval vessel.

There is a national submarine design prepared by the Engineering Division of the Navy. In order to build its nuclear submarine, the Navy could not base itself on a foreign design, as is the case with the three units that will be built in the Rio Navyyard, based on the German Class IKL-209-1,400 design. In addition to that, the Navy is conducting research with the support of the Institute of Energy and Nuclear Research (IPEN) of the USP.

Confirming this report published by ESTADO on 19 June, Admiral Saboia said that a "nuclear submarine propulsion system" is being developed in the Sao Paulo municipality of Ipero. He explained: "The Navy felt the need for such a system in the course of time because whoever makes a strategic study of Brazil's interests on the sea and its future prospects will confirm that it is essential to have a nuclear submarine some day."

According to an official who has been following the process from the beginning, one of the problems encountered by the project of enrichment of uranium for the nuclear submarine concerned metallurgy but it has already been solved. The Brazilian nuclear submarine could be incorporated into the Navy within 10 years, depending on financial resources. That period, which could even be shortened, was calculated on the basis of the Navy's last two budgets.

The NUCLEBRAS subsidiary, NUCLEP, is participating in the construction of the first three conventional submarines in the Rio Navyyard and that could facilitate execution of the nuclear model. The minister said that the agreement has already been signed with the company.

Admiral Saboia stressed that there is a big difference between a project for the construction of an atomic bomb, "which does not exist," and that of an atomic submarine. "The nuclear propulsion system has nothing to do with that," he explained. "Brazil is building nuclear power plants that produce electric energy. The submarine propulsion system is simply a system intended to rotate the submarine's shaft and the reactor has to be smaller and much more compact because it operates within a closed hull; but that has nothing to do with nuclear arms.

"We are trying to achieve it," he added, "because nobody exports that technology and we have to develop it." According to the contract signed with NUCLEP, that state enterprise will be charged with the construction of the hulls of the first three conventional submarines scheduled to be built in the Rio Navyyard. The company will participate later in research for the nuclear unit.

#### Evidence

The Navy's facilities on the Ipanema tract in the municipality of Ipero in the Sorocaba region intrigue the city's mayor and councilors. They have already gotten together to obtain an explanation. Officially, the 38.72-hectare area is allegedly intended for the manufacture of steamship components. But for a long time, the politicians have suspected that something else was going on because of the security measures around the property, such as experiments with nuclear technology.

#### Maximiano and the Bomb

Former Navy Minister Maximiano da Fonseca said in Rio yesterday that he is in favor of the construction of a Brazilian atomic bomb. "If the decision depended on me, I would give the order to build the bomb and I would explode one just to show that that is all we had," he declared. The admiral regards the existence of a parallel nuclear program as normal, observing that it would not be possible to conduct research for military purposes under the agreement signed by Brazil with the Federal Republic of Germany in 1975, which has only "energy objectives."

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CSO: 3699/16

BRAZIL

#### MINISTER DENIES NUCLEAR PROGRAM SUSPENSION

PY031650 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 1 Nov 86 p 26

[Text] Mines and Energy Minister Aureliano Chaves yesterday met in Rio de Janeiro with Licinio Seabra, president of Nuclebras and its subsidiaries, to deny reports that the nuclear program will be suspended after the construction of Angra III. The decision on the construction of other plants will be made only after 1989, "when we have more data to decide whether it is convenient or not," Seabra stated.

The ministers stated that during the meeting, "I ratified what has already been agreed on in the report released by the top-level experts. This report was already approved by President Jose Sarney: the nuclear program will continue. Now we are fighting for the flow of resources to be channeled so that the construction of Angra II and III is feasible." He added that the ministers of the economic team know that there is a document approved by the president of the republic and that they will have to put it into practice and release the necessary funds for the continuation of the program next year.

The minister added that, should the construction of the nuclear plants be delayed, the program will become unfeasible "as happened with the steel plants, which, in Brazil are some of the most efficient in the world. But the delay in releasing funds has placed Siderbras [Brazilian Iron and Steel, Inc] in a very difficult situation. With the hopes that there will be no delays in the construction of the nuclear plants, Chaves admitted that "the ministers of the economic area are having difficulties and that they have never displayed any discrimination against the atomic energy sector."

The minister does not know when Angra I will begin operating again, but said that "it will resume activities when tests prove that the reactor is in keeping with international security rules."

After the meeting, Seabra stated that President Sarney has decided to continue with the nuclear program, although he did not set any date for the construction of the other plants. The Nuclebras president added that the nuclear sector will need \$1 billion for next year, \$600 million of which will be used for servicing the debt, and the remaining \$400 million for investments. "The continuation of the program is important because of the energy problems that the country is facing and in view of the establishment of economic growth during the next few years," he stated.

Seabra added that the minister "has expressed concern over the suspension of the nuclear program in case the resources are not released by next year." He said that, for the maintenance of the technical teams, there must be a minimum amount of work in the nuclear sector, guaranteeing at least a small amount of continuity in the program. Seabra added that "the construction of Angra II will not be delayed, despite a 50 percent reduction in the engineering work until the end of this year."

CHILE

SCIENTISTS OPPOSE NUCLEAR PLANTS, WEAPONS

Santiago EL MERCURIO in Spanish 3 Oct 86 pp C-1, C-8

[Text] Members of six academies of science have issued a statement on the need for reviewing measures against radiation and rejecting military use of such energy.

The Chile Institute, consisting of six academies of science, yesterday categorically rejected military use of nuclear energy; it concluded that there is no justification for installing nuclear plants in Chile for producing electric power, and it recommended review and evalution measures for assuring 100 percent protection against radiation in the country.

This statement is included in a document put together by Drs Amador Neghme and Ricardo Cruz-Coke of the Academy of Medicine; Igor Saavedra, Luis Vargas Fernandez, and Gustavo Hoecker of the Academy of Sciences; Carlos Martinez Sotomayor of the Academy of Social Sciences; Oscar Pinochet de la Barra of the Chilean Academy of Language; and Carlos Riesco Grez, general secretary of the Chile Institute.

In the note, along with rejecting the use of [nuclear] energy for military purposes, the institute suggested that activities be promoted to favor the denuclearization of Latin America. "To that end, it is recommended that international treaties and agreements signed by our country, promising to abstain from the use of nuclear weapons, be ratified without reservation."

It also explained that nuclear reactors have been shown to be a "serious risk factor" for living creatures, both plant and animal, including man, throughout the world and not just regionally.

Referring to Chile, the scientists pointed out that the risk of accidents is especially great in seismic countries like Chile and that therefore "internationally accepted technical standards and safeguards should be stressed." Further on they expressed their confidence that safety measures under the country's existing laws "will be strictly adhered to by the Chilean Nuclear Energy Commission."

On the other hand, they added, there is no present reason in Chile to build nuclear power plants, since the country already has ample capacity to generate electric power by conventional means, principally hydroelectric, and to supply the whole territory. "In any case, future evaluation of possible nuclear power installations should carefully consider the accompanying risks and should not be based exclusively on considerations of economic convenience of the moment," they declared.

The institute went on to recommend the review and evaluation of applying measures "for assuring 100 percent protection against radiation and for guaranteeing the isolation of radiation risk centers, as well as adequate elimination of radioactive wastes."

On the international level, they stated that it is necessary to register disapproval of nuclear explosions, most especially for those set off in the Pacific Ocean basin, and they propose to bring the institute's document immediately to the attention of the countries affected, in order to show their concern more forcefully.

"On the same basis, there should be further movement toward the total elimination of nuclear weapons and the end of all testing, production, and deployment of such weapons and their carriers. This would lead immediately to substantial reductions in nuclear forces," they added.

In the last part of the text, it is recommended that the depositing of radioactive wastes or materials in the South Pacific and other seas be avoided, because of the potential dangers that that poses.

And in conclusion they point out: "Because of its fundamental importance for the continuation of human life, it is recommended that there be a permanent educational effort on the biological effects of ionizing radiations and of the weapons built on their basis."

Commenting on the text, the instigator of the initiative, Dr Amador Neghme, president of the Academy of Medicine, indicated that through this statement the scientists of Chile have done no more than share the concern for the problem that exists throughout the world. He indicated that Chile has enough water so that it does not need nuclear energy and can get along on hydroelectric power.

According to an attached report handed out at the institute, there are only two reactors in operation in Latin America, one each in Brazil and Argentina. Another five are under construction, two in Brazil, one in Argentina, and two more in Cuba and Mexico. In contrast, the United States has 101 plants in use and is building another 29.

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CSO: 5100/2023

DOMINICA

BRIEFS

CHARLES ON NUCLEAR 'EQUIPMENT'--Bridgetown, 17 Oct (CANA)--Dominica's Prime Minister Eugenia Charles last night indicated strongly her opposition to the presence of nuclear equipment in the vicinity of her island. I certainly don't want any nuclear equipment anywhere near me, that is definite, she declared. She spoke in a CANA Radio Crossfire programme, which discussed militarisation of the region. But Charles made it clear she saw nothing wrong with non-nuclear naval forces of friendly countries visiting her island. [Text] [Bridgetown CANA in English 1405 GMT 17 Oct 86 FL] /9274

CSO: 5140/010

BANGLADESH

BRIEFS

ABSENCE OF RADIOACTIVITY--Bangladesh Atomic Energy Commission on Saturday said that the Commission did not find radioactive substance in the imported milk powder and milk products. The environment of Bangladesh water, vegetables fish and meat were also found free from such radioactive substances by the Atomic Energy Commission. The scientists of the Bangladesh Atomic Energy Commission made a survey on the above products through survey metre of bita-gama. They found that the rate of radioactivity in Bangladesh is less than the rate fixed by the International Atomic Energy Agency for safe absorption in human body. The Atomic Energy Commission feels the necessity of removing the apprehension among the people after the Chernobyl accident. [Text] [Dhaka THE BANGLADESH OBSERVER in English 19 Oct 86 pp 1, 8]  
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CSO: 5150/0047

EGYPT

**'ABD-AL-MAJID CONFIRMS SUPPORT FOR UNITED NATIONS**

Cairo AL-AHRAM: AL-TAB'AH AL-DUWALIYAH in Arabic 26 Oct 86 p 8

[Article by 'A'ishah 'Abd-al-Ghaffar: "International Support for the Egyptian Initiative to Set Up a Nuclear-Free Zone in the Middle East"]

[Text] Dr 'Ismat 'Abd-al-Majid, deputy prime minister and foreign minister, announced that the initiative that Egypt has brought before the United Nations General Assembly since 1974 for the setting up of a zone free of nuclear weapons in the Middle East wins wide-spread international support every year. He said that Egypt is carrying out its role to aid the United Nations and its special agencies specializing in serving the development goals in the Third World countries, and that the effectiveness of the role played by the international organization is the responsibility of all the countries of the world in order to preserve international security and peace.

The deputy prime minister and foreign minister added in his address at the ceremony held yesterday by the Egyptian United Nations League on the occasion of International United Nations Day, "The United Nations has played a major role in alleviating international conflicts. It has been a reflection of the changes that took place and take place in the international arena. For example, the organization was the first touchstone for the efforts of the developing countries to redress the shortcomings in the international economic system at the same time as the emergence of the league of developing countries known as the '77' League. This is the league that met in Egypt last August in a high-level meeting on economic cooperation between developing countries. The Cairo Declaration was issued from this important meeting. It comprises positive strategic groundwork for the future work for this economic cooperation."

He said, "We will not forget the role of the United Nations in the struggle against foreign occupation, its exploration in protecting the independence of developing countries, its concern for pressing international problems, and its keeping them alive in the heart of international society that is aware of their existence and interacts with their dimensions. We will never forget the United Nations' embrace of the Namibia problem without which it would have been lost in the forest of international relations and interwoven conflicts. In addition to that, the United Nations each year highlights the Middle East problem and the Palestinian question. It issues declarations that justly

express the pulse of international society regarding the necessity of a solution to this problem, for the withdrawl of the Israeli forces from all the occupied Arab lands, and the realization of a comprehensive and just peace in the Middle East with the guarantee of the inalienable and legitimate rights of the Palestinian people including their legitimate right to self-determination."

Likewise Dr 'Ismat 'Abd-al-Majid reviewed in his address the Egyptian viewpoint in the international, Arab, and economic issues that he discussed with the foreign ministers of the countries of the world during his chairmanship of Egypt's delegation to the 41st session of the General Assembly.

Dr 'Abd-al-Ahad Jamal-al-Din, chairman of the Egyptian delegation to the United Nations, confirmed in his speech the importance of the stance against any effort to shake the confidence of international society toward the United Nations Organization, and in paying its agency specializing in combating financial difficulties. He said that the United Nations has represented, since its birth 41 years ago, a hope for the peoples eager for a world where security and peace prevail and in which the people's rights are guaranteed. Likewise, the United Nations has been a sanctuary for the helpless peoples.

He said that Israel and South Africa must implement the United Nations resolutions that relate to the right of the Palestinian and Namibian peoples to attain their freedom and independence.

Dr 'Abd-al-Ahad Jamal-al-Din directed thanks to President Husni Mubarak and the Egyptian Government for Egypt's continuous support of the United Nations and its special agencies.

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CSO: 5100/4604

EGYPT

WEEKLY URGES WITHDRAWAL FROM NUCLEAR TREATY

PM241351 Cairo AL-SHA'B in Arabic 14 Oct 86 p 1

[Editorial: "Face Them With Maximum Strength"]

[Text] The *Sunday Times* report on Israeli nuclear armament, which we are publishing today, may not be a surprise to observers of Israeli affairs. But there is no doubt that it is the first detailed report showing how Israel has turned the Dimona reactor into a plant for the production of nuclear bombs, affirming that Israel has a number of nuclear bombs ranging between 100 and 200, and indicating that Israel considered the use of nuclear weapons when it was beaten in the October war; an American airlift was the alternative to this option. The report confirms France's help for Israel at the early stages [of building the reactor] and we have no doubt that the ban on the Americans from inspecting the nuclear reactor does not mean that they had no knowledge of this development. Indeed what happened during the October war confirms the Americans' knowledge of this fact, which has often been reported in the Western media in the past years.

As we publish this documentary report, we would recall the Socialist Labour Party's [SLP] stand during the Al-Sadat era when we opposed Egypt signing the Treaty on the Nonproliferation of Nuclear Weapons when Israel refused to sign it so as to avoid the consequential inspection. We stressed at that time that this meant we were allowing Israel to proceed alone on the road to nuclear armament and so be able to impose its supremacy on the Arab region. We are not publishing the *Sunday Times* report today to spread fear and terror of Israel but to alert the public in Egypt and to show our government the crime which it has committed against our national security since the Al-Sadat era and until now. Our government made a one-sided peace out

of Camp David which is tantamount to surrender, while leaving our enemy armed to the teeth and able to strike at all fronts. We are not calling for tears to be shed over the past or sorrow to be shown, but we are calling for a responsible national stand to immediately bridge the gap between us and the Zionist enemy. Serious and continuous work will be capable of achieving nuclear balance. The government now has the right to announce the withdrawal of Egypt from the Treaty on the Nonproliferation of Nuclear Weapons. Egypt does not lack the material resources or the scientists, who have forged their way forward in this field since the sixties and also participated in setting up the Iraqi nuclear reactor before it was hit, but it lacks the willpower and faith.

If Israel was behind the leak of this report (despite the official denial), there is no doubt that its aim is to intimidate, alarm, and further humiliate us. We would say that we only lack the willpower, belief in Allah and the recovery of our fighting spirit, the 6 October spirit, as referred to by newspapers, in order to confront this Zionist contentiousness and its evil plans.

This question is not subject to competition among political parties. We confront the regime with its responsibilities; we cannot treat the fate of our country, civilization, and also our right to a free life with such contempt because history will have its say and also the people will have their say. We know that the defeatists will say "didn't you see...we are not up to Israel," but we answer them with the words of Allah, the almighty: Against them make ready your strength to the utmost of your power [Koranic verse]. God is great. And long live the people.

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CSO: 5100/4603

INDIA

## MINISTER DEFENDS NUCLEAR POWER GENERATION

Bombay THE TIMES OF INDIA in English 7 Oct 86 p 23

[Text]

BOMBAY, October 6

THE Union minister for science and environment, Mr. Shivraj Patil, yesterday defended the nuclear power generation programme against charges that it was dangerous.

Chairing a session on energy and conservation at the national seminar on environment organised by the Bombay regional Congress committee, he observed that thermal and hydel power generation was as dangerous as nuclear power generation, in terms of pollution.

Advanced countries had realised that nuclear power would become one of the most important sources of power. Giving comparative figures from the USSR, USA, France and Japan, he said they had much higher nuclear power generation than India.

The government was aware of nuclear hazards and all safety measures were being taken, Mr. Patil said. There was no need for panic.

He stated that the government would ensure that economic development did not take place at the cost of the environment. Quoting from other sources, he said radiation hazards were greater from other areas like diagnostic X-ray and nuclear weapons testing, than from nuclear power generation.

The Congress vice president, Mr. Arun Singh, who also addressed a session, repeated what others had said that unless the people themselves were involved in protecting their environment, no laws would be useful. "Environment could not be policed" by employing guards from outside.

Mr. Singh called for detailed and planned action at the panchayat and taluk level to involve people. "Polit-

ical will comes into play" here. He said there was need for political consensus to implement environmental laws.

Meanwhile, Dr. S.L. Kati, from the nuclear power board, also repeated the oft-stated government position that the department of atomic energy was taking all measures for environmental protection. Radiation release into the atmosphere and water was within the prescribed limits. Limits of exposure to any person had never been exceeded.

Dr. Kati stated that there was no possibility of a Chernobyl type disaster since "our reactors are of a different design". He pointed out that nuclear power was cheaper than thermal

/9274  
CSO: 5150/0036

INDIA

## UN DELEGATE STRESSES IMPORTANCE OF NUCLEAR SAFETY

Bombay THE TIMES OF INDIA in English 12 Oct 86 p 8

[Text]

UNITED NATIONS,  
October 11 (PTT).

CONCERNED at the recent mishaps in nuclear plants India and several other countries have stressed the need for reaching international agreements on nuclear safety.

Greater co-operation between different countries, particularly between the developed world and developing countries, was advocated by the Indian delegate, Mr. Ravinder Kumar, at the special political committee of the U.N. general assembly yesterday.

India, he said during a discussion on the effects of atomic radiation, welcomes the reported decision of the United States and the Soviet Union to provide information on radiation emissions for military as well as civilian nuclear accidents. The problem of nuclear safety had to be treated with due seriousness and utmost sense of responsibility, he emphasized.

India's nuclear programme, Mr. Kumar said, had a high degree of safety. Its plants were away from public areas and a 1.6 km exclusive safety zone was maintained.

He told the committee that the Indian atomic energy programme was safety for peaceful purposes. India had started working on the peaceful utilization of nuclear energy at a time when it was essentially very much a "frontier science," into which very few developed countries had ventured.

In the committee, India supported China's request for membership of the U.N. scientific committee on the effects of atomic radiation. The political committee later recommended Beijing's membership to the general assembly.

Several other countries also emphasized the need for international co-operation to step up safety at nuclear plants, particularly in the light of the Chernobyl accident in the Soviet Union.

/9274  
CSO: 5150/0042

INDIA

**BRIEFS**

NUCLEAR PLANT SAFETY--Bombay, 7 Oct--Representative employees from various units of the department of atomic energy (DAE) today criticised the safety standards in nuclear plant all over the country, at a meeting held here today. The two-day meeting of the all-India atomic energy employees' co-ordination committee demanded the strengthening of the safety standards. "There has been a consistent violation of the existing standards at all DAE installations," Mr Ravindra Shukla, president of the committee said. The safety review committee, an internal DAE set-up to ensure adherence to safety norms, was "concerned with safety of (nuclear) plants, not human beings," Mr Shukla said. Workers in nuclear plants were not informed about the permissible dose of radiation and how much they had been exposed to, Mr Shukla added. The meeting passed a resolution opposing the formation of the proposed Nuclear Power Corporation. The nuclear industry would eventually land into private hands, leading to drainage of money from the public to the private sector, the resolution said. The meeting, which was held at the BARC training school hostel, was attended by 76 delegates and 35 observers, representing 19 of the 21 unions and associations in DAE units. [Text] [Bombay THE TIMES OF INDIA in English 8 Oct 86 p 8]  
/9274

CSO: 5150/0037

IRAQ

IAEA URGED TO CEASE COOPERATION WITH ISRAEL

JN040958 Baghdad INA in Arabic 0845 GMT 4 Nov 86

[Text] United Nations, 4 Nov (INA) — Iraq has called on the United Nations to urge the UN Security Council to take effective measures to force Israel to subject its nuclear installations to IAEA inspection and supervision. In a draft resolution submitted last night to the UN political and security committee, Iraq urged the IAEA to stop all scientific cooperation with Israel, which would help it reinforce its nuclear ability.

Iraq expressed concern over Israel's growing nuclear capability which poses a real danger to the Middle East region. Iraq also denounced the nuclear cooperation between Israel and the racist regime in South Africa. Iraq's delegate to the committee drew attention to Israel's claims of establishing a textile factory. He said this factory is in fact a large nuclear plant designed to manufacture fissionable materials used for military purposes, in addition to the Dimona factory which manufactures three nuclear bombs a year. He also drew the United Nation's attention to the fact that several officials in the world have previously stressed that the huge Israeli nuclear capability constitutes a true danger to the Middle East region. He called on the world states and the other organizations that continue cooperation with Israel in the nuclear field to stop this cooperation.

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CSO: 5100/4507

ISRAEL

## URANIUM EXPLORATION TO BEGIN

Jerusalem THE JERUSALEM POST in English 15 Oct 86 p 4

[Article by Bernard Josephs]

[Text]

A series of major projects, including a search for uranium, is to be launched in the Negev shortly by the Energy Ministry.

Minister Moshe Shahal said yesterday the aim is to turn the desert into a power plant for the nation.

"The Negev might be poor in many resources, but it is rich in energy," he said. "There is sun, there is oil shale and there is wind. Whatever the source of energy, if it is there we will find it."

The biggest single project is to be the building of a \$26 million, five megawatt power station that will burn oil shale and produce electricity for the national grid.

In addition, several million dollars is to be spent in the next four years for research and development on the use of oil shale. Ministry officials pointed out yesterday that there are some 10 billion tons of shale in the Negev, enough to supply the country with

electricity for the next 50 years.

Most of it is close to the surface, which cuts the cost of mining and limits the ecological impact of its extraction, they said.

The ministry is also to invest \$1m in an experimental wind turbine centre. Experts are currently looking for a suitable site.

Finally, \$500,000 is to be spent in a hunt for uranium and other ores following indications that such deposits may exist.

These projects, combined with the building of a \$4m. solar energy research centre at Sde Boker, represent a big effort to exploit the natural energy resources of the Negev, said a ministry official.

The Sde Boker centre, announced by Shahal at the recent Cannes international energy conference, indicates that experts believe so-called "alternative" energy sources could help provide an answer to future power needs.

/9274  
CSO: 4400/46

PAKISTAN

ABDUL QADEER KHAN INTERVIEWED ON ATOMIC ENERGY PROGRAM

Lahore CHATAN in Urdu 31 Aug 86 pp 11-16

[Interview with Dr Abdul Qadeer Khan conducted by Younus Khalis: "Will Not Disappoint the Nation: Atomic Technology Essential for Survival; date and place not specified]

[Text] CHATAN had the honor of publishing the first detailed, very sensational interview with our great nuclear scientist, Dr Abdul Qadeer Khan, on 6 February 1984. NAWA-I-WAQT published the interview with Dr Khan on 10 February.

I had interviewed Dr Khan in two sessions, on 29 and 31 January 1984. That interview was reprinted by several foreign newspapers and journals after its first appearance in CHATAN. Rawalpindi's JANG reproduced it verbatim. Britain's most important news medium, the BBC, commented on this interview in its own special style. Several Indian newspapers with large circulations reprinted it on their front pages. Mrs Indira Gandhi was considering attacking Pakistan in those days, as both the Hindus and the Jews had their eyes on the Kahoota Research Center. The later assassinated prime minister of India was taken aback when this interview was published. All her designs on Pakistan were destroyed. "The Goddess" had to cancel all her plans. Political observers and veteran politicians have admitted that the timely publication of this interview in CHATAN and NAWA-I-WAQT saved Pakistan from a deadly Indian attack. CHATAN is very proud that its writing saved our country's unity and pride.

All patriots are aware that Israel and Hindus are our worst enemies. They conspire against Pakistan all the time. By the grace of God, all their efforts and evil designs against Pakistan fail. Pakistan is still here and will stay here with the help of God.

However, we must remember that the agents of these two powers are very active in our country. These agents are generally known as Qadianis. They are deceitfully working in every part of our country. Their presence in our atomic plants can be fatal to our country. According to our information, these Qadianis are not active against Dr Khan and want to harm him. Israel is helping them in this effort, and India is encouraging them. It is rumored that the pilot who betrayed our country and took training in Israel has been arrested. He has been punished, but our country must be very careful and

alert regarding "these snakes in our own sleeves." In the past this group hurt our country in the form of the fall of Dhaka. They offered a huge sum to Indira Gandhi so she could accelerate her efforts to change East Pakistan into Bangladesh. This soul-shaking news was broadcast by the All India Radio. This was the very news that made Maulana Aslam Qureshi so emotional that he tried to kill M.M. Ahmad. It should be recalled that this fact is included in the case file, and that a newspaper carrying this news report on its front page is filed with the military court. This group is very active against Pakistan's atomic program, and the government should keep a close eye on it. The following interview was conducted in mid-1984 [as published] and is being reproduced.

[Question] Dr Sahib, you must be aware of the debate over the Kala Bagh Dam. Some people believe that generation of electricity would be more appropriate using atomic energy than hydropower. What is your opinion on this issue?

[Answer] There is no doubt that in the present situation atomic reactors are more efficient for meeting our electric power needs. However, we need trained experts for that, because it involves very complicated, sensitive technology. We know what happened in Chernobyl recently. We must have resources available to control the results of such an accident. We cannot depend on one form of energy production alone; we must have thermal and hydropower plants as well.

[Question] The superpowers do not want the developing countries to have nuclear capabilities. Can Pakistan develop nuclear energy using its own resources? What specific problems are there?

[Answer] It is true that the superpowers have imposed some unreasonable restrictions on the transfer of nuclear technology in order to keep their monopoly in this area. The experts also know that the developing countries need this technology for their development plans. As for Pakistan, there are fields such as agriculture, medicine, and electricity that cannot progress without the use of nuclear energy. In order to survive in this atomic era, we must have atomic energy. For this very reason, the Kahoota atomic plant came into existence through the efforts of Pakistan; engineers and scientists. We cannot be too proud of it. The only purpose of this plant is to produce nuclear energy for peaceful uses.

We faced many difficulties while building the Kahoota plant. The scarcity of our resources, the lack of cooperation from our neighboring countries, restrictions on the procurement of various items by the Western countries, poisonous propaganda spread by the international Zionist lobby, external interference, fears of attack by other countries, the high-handedness of our own bureaucracy, and the presence of such traitors as Mir Qasim in this subcontinent are some of the things that hinder our country's progress. Despite all these, our hardworking scientists and engineers managed to achieve some remarkable results. They worked very hard to achieve our goals, and finally succeeded in elevating Pakistan to the same level as industrialized nations in the field of atomic technology. Pakistan has kept its promise of using atomic technology for peaceful purposes only.

[Question] According to some experts, the Karachi electricity plant is located in an area where some subterranean geological changes can result in dangerous developments. What do you know about this?

[Answer] The Karachi plant was built under the supervision of international experts. They took every precaution, including a thorough survey of the seacoast. The subterranean geological changes were discussed, and those international experts did not think they would be dangerous.

[Question] According to an Indian scientist, India will make 2,732 bombs by 2000 A.D., and is capable of making 300 bombs at present. Do you think this is correct?

[Answer] India is a vast country with huge resources. It also has highly trained technicians. It does not have as many restrictions on the importation of materials from Western countries as has Pakistan. There are 13 atomic reactors working in India now, and it already conducted an atomic blast in 1974. In the light of all these facts, India is very capable of making many bombs by the year 2000. As for Pakistan, we have very limited resources and our atomic program is designed for peaceful use instead of arms development.

[Question] When the citizens of Pakistan become victims of India's designs or read this frightening news, danger bells ring in their minds. The question, will we be able to defend ourselves against a nuclear attack, arises in every mind.

[Answer] Pakistan's atomic program is not designed to attack any country. We want to maintain peace. We are sure that no neighboring country will attack us. Should there be an attack, I am sure that our scientists and engineers would be able to find ways to retaliate.

[Question] Which countries in the world are producing uranium using the centrifugal system?

[Answer] The Netherlands, Britain, and West Germany are producing uranium using the centrifugal system. Japan has also succeeded in this system on a laboratory scale. It should be remembered here that Britain and West Germany built a plant cooperatively to produce uranium using the centrifugal system. Pakistan amazed the whole world by succeeding in achieving the same results in the brief period of 7 years.

[Question] Is not designing a delivery system for a bomb a very difficult process? Are our top scientists capable of developing such a process?

[Answer] It is an accepted fact that any country that makes an atomic bomb also thinks about its delivery system. Since our program is not designed to make atomic bombs, the question of a delivery system does not arise. Our scientists have a lot of self-confidence since they perfected the very complicated and difficult process of producing uranium. They are capable of solving more difficult problems now. When needed and asked, they would be able to design a delivery system.

[Question] Dr Sahib, a respected scientist of our country has suggested that Pakistan should open the Kahoota Research Center for international inspection. What is your opinion on this?

[Answer] His statement is of a purely political nature. He has no political position in this country and is using this statement just to get attention. Such statements only show his political immaturity. He should explain the purpose of opening the Kahoota Research Center for international inspection. This center has become successful because of the hard work and diligence of Pakistani engineers and scientists. We did not use any foreign financial or technical assistance to build it. Nobody likes to open its house to strangers.

[Question] The same politician has also said in an interview that Pakistan should not make atom bombs. He said that it would be stupid for Pakistan to make bombs. Would you please comment on this?

[Answer] It appears that he is working for the United States, Israel, and India while still living in Pakistan. The fact is that our president and prime minister have repeatedly announced on an international level that Pakistan lacks the required resources and technology to make an atom bomb and that our program is geared to the peaceful use of atomic energy. We would be very proud if our scientists and engineers have the capability to make an atom bomb. The decision to make a bomb depends on our top leaders and not on a common scientist. It is the duty of every patriotic citizen to condemn such statements.

[Question] Dr Sahib, I believe that you read CHATAN regularly. Our journal has exposed the conspiracies of Qadianis several times. CHATAN has also exposed the efforts of this group to hinder our atomic program. Do you agree with the articles published in our journal?

[Answer] I agree with the facts about Qadianis' conspiracies against our nuclear program revealed in the weekly CHATAN. There is no doubt that the Qadianis have been working with the "Jewish" lobby against Pakistan's atomic program inside and outside the country. They are actively spreading false propaganda against Pakistan on an international level. They have used their influence on the Western countries to make problems for Pakistan.

[Question] A former minister in Mr Bhutto's cabinet told me that Mr Bhutto had decided against purchasing an atomic reprocessing plant after meeting with you. Did you agree with that decision?

[Answer] Since that former minister was a close confidant of Mr Bhutto, the late prime minister may have consulted him on this issue. People who know still believe that buying a reprocessing plant would not be cost effective. Those who had advised buying it obviously were ignorant of its appropriate uses. We only have one atomic reactor, and it would not be able to meet the demands of a reprocessing plant.

[Question] The same minister also said that Mrs Gandhi decided against bombing the Kahoota Research Center after reading your interview. She was frightened. Do you think this minister is correct in his assumption?

[Answer] His assumption is correct. Mrs Gandhi wanted to attack the Kahoota plant in the same way as Israel destroyed the atomic reactor in Iraq. The timely publication of my interview in NAWA-I-WAQT and CHATAN frightened her and forced her to change her plans. This assumption has been proved by various sources to be correct.

[Question] It is said that a case against you for stealing atomic secrets was filed on behalf of Israeli Prime Minister Begin. A Jewish woman judge sentenced you according to present plan. Since this case was all lies, we did not pay attention to it. Would you please tell us more about it?

[Answer] It is true that a case based on false accusations was filed against me in a Netherlands court. The Jewish woman judge ruled against me in my absence. Two of the three judges in that court were Jewish, including the woman judge, who was chairman of the panel. Thank God the higher court dismissed the case, decided in my favor and gave me an honorable acquittal. This decision not only made Pakistan proud but it also made the Jews look bad all over the world.

[Question] It is said that you needed some information from the Atomic Energy Commission for this case. You were denied the requested literature. Mr Munir Ahmad Khan advised his staff not to give you access to any information. Is this true?

[Answer] It is true, and a little painful for me. However, when I asked the internationally famous Dutch company, Philips, for this specific literature, they sent it to me immediately. The literature proved that this specific information about atomic reactors had been available to the public since 1930. This very literature helped in defeating the accusations against me.

[Question] The Kahoota center is named after you, as our president is impressed with the miracles you have worked there. Have you succeeded in the goals for which this center was established?

[Answer] Thank God that specific project was assigned to me by the government and I was successful in realizing the goals in a very short time. President Zia recognized this success by naming the center the Dr. A. Q. Khan Research Laboratory. I am very proud of this.

[Question] Would India be free of nuclear aftereffects if it were to drop atomic bombs on Pakistan? Could Pakistan defend itself in a nuclear attack?

[Answer] India is Pakistan's neighbor. India should not dare to attack Pakistan under the present circumstances. Should it decide to drop atomic bombs on Pakistan, it would have to be very careful in the selection of

those bombs to assure its own safety. As for Pakistan, its atomic program is designed for peaceful uses only. Our president and prime minister have told us this many times. Should nuclear defense technology be required, I am sure our engineers and scientists would not disappoint the nation.

[Question] According to some prearranged plan, our citizens are being frightened with a possible atomic attack by India. In this psychological warfare, your words are like a light in the dark. You help our countrymen to gain courage. Each word you say makes them feel better.

[Answer] Many traitors are present in our country. They try to frighten people. We all believe in Almighty God, and I am sure that such tactics will not adversely influence our brave citizens. As for me, despite my being busy in research, whenever there is a need I will share my views with people and keep them informed. Our citizens are very stable people and they can stand any psychological warfare.

[Question] Are science and technology two different branches, or one and the same thing? I am asking this question as some of our leaders are advising the government to focus on the development of sciences, and they do not think technology is important.

[Answer] Science and technology are two different fields, but they are so interdependent that they cannot be separated. Science gives birth to a theory, and technology puts the theory into practice. Their relationship to each other can be compared to the relationship of body and soul. Technology is the body and science is its soul. The body moves as the soul dictates. Science belongs to scientists, and technology to engineers.

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CSO: 5100/4703

PAKISTAN

## CHERNOBYL-LIKE ACCIDENT AT KANUPP RULED OUT

Karachi DAWN in English 22 Oct 86 pp 1, 6

**[Text]** KARACHI, Oct 21: A Chernobyl-like accident cannot take place at the Karachi Nuclear Power Plant (KANUPP) according to a safety review of the Plant's operation undertaken by the PAEC Nuclear Safety Committee soon after the tragic reactor mishap in the Soviet Union, says a report in Pak Atom, PAEC.

The review rules out the occurrence of a Chernobyl-type accident on the grounds that KANUPP, unlike the Chernobyl reactor, does not use graphite as moderator, has a sturdy and reliable containment, and is provided with back-up arrangements for removal of excess heat. Nevertheless, a number of suggestions recommended by the Nuclear Safety Committee to beef up the existing safety measures at KANUPP are under implementation.

It will be recalled that in early 1985, an IAEA Operational Safety Review Team (OSART) had performed a thorough review of KANUPP's safety regime. It concluded: KANUPP's safety was satisfactory but suggested several improvements. Many of its proposals have already been implemented while others are under execution.

Also, a report recently prepared by the Senior Health Physicist of KANUPP, *inter alia*, mentions: "KANUPP has operated well within the current safety limits prescribed by or deduced from the International Commission on Radiological Protection (ICRP) recommendations. The operating personnel were never subjected to excessive radiation doses and adequate safety measures remained, available to monitor and counter any potentially hazardous situation.

Similarly, the environment was

not subjected to any significant radioactivity burden and the radioactive releases from KANUPP constituted an insignificant (less than 1%) fraction of the amount permitted by safety limits. Over the years the plant has functioned normally and the adequacy of the safety and monitoring equipment (and procedures) has never been severely strained. **CHERNOBYL'S IMPACT ON PAKISTAN:** There has been no direct physical impact of the Chernobyl accident on Pakistan. The atmosphere and vegetative environment sampled at several localities throughout the country showed no significant change in normal background levels. The normal radiation background at Islamabad, for instance, corresponds to an exposure of about 150 mRem per year. After the Chernobyl accident, the maximum recorded background radiation corresponded to a value of 230 mRem per year. The internationally accepted permissible exposure to the general public is 500 mRem per year over and above the natural background prevailing in the area. In other words, the very slight increment in environmental radioactivity which persisted for a few weeks after Chernobyl was far too low to cause any concern whatsoever. Even that slight increase has now virtually disappeared.

PAEC has a full-fledged Directorate of Nuclear Safety and Radiation Protection (DNSRP) and a high-level Nuclear Safety Committee (PNSC) which periodically review the design, operational procedures and practices at nuclear installations in Pakistan. The Commission's work in this area will be further strengthened in cooperation with IAEA and friendly countries.

SOUTH AFRICA

UK PAPER: SECRET PLANT COULD MAKE NUCLEAR ARMS

PM101239 London THE DAILY TELEGRAPH in English 10 Nov 86 p 7

[Article by technology correspondent Roger Highfield: "Secret S. Africa Plant Could Make Nuclear Weapons"]

[Text] South Africa will be in a stronger position to build nuclear weapons when its uranium enriched plant at Valindaba goes into operation next year.

The secret plant, which is half an hour's drive from Johannesburg, will become a new bargaining counter in negotiations with the West over sanctions, according to Mr Peter Lomas, a consultant researcher at the Stockholm Peace Research Institute.

An investigation into the capabilities of the plant conducted by Mr Lomas concludes that there is no doubt that the plant can produce uranium enriched enough to make nuclear weapons.

Natural uranium is a mixture of isotopes containing only a fraction of a per cent of uranium 235, the fissile form. Commercial nuclear reactors need fuel containing around three per cent, bombs require much more, which is where the process of enrichment comes in.

Mr Lomas speculates that the enrichment complex at Valindaba could be put to one of three uses:

**Nuclear Weapons.**

Nuclear fuel to supply the country's two French-built 1000mw reactors at Koeberg, when contracts with the French run out and the country faces embargoes on the import of nuclear fuel.

A strategic stockpile of enriched uranium, for use as a bargaining counter in negotiations with the West and from which to earn foreign currency.

Of the three, he believes it is the last that the South Africans are pursuing. "I believe that they may have had a weapons programme, that they may have had nuclear weapons, but I do not believe that they have any use for them because of their overwhelming conventional forces."

The enriched uranium will be used in the production of nuclear fuel, a capability which is under development at the neighbouring Pelindaba site, though Mr Lomas said it would not make much of an impact on sanctions.

However, he said that the West would be anxious to try to exert some control over the enriched uranium, a strategic material, which could be exported from South Africa next year.

The semi-commercial plant at Valindaba will have a capacity of 30,000 separative work units, the method used to measure quantities of enriched uranium, modest in comparison with the handful of enrichment plants elsewhere in the world.

A spokesman for the Atomic Energy Corporation of South Africa said the plant would only produce uranium enriched to a level of 3.25 per cent—that required to make fuel for the country's two commercial nuclear reactors at Koerberg, near Cape Town, making South Africa self-sufficient in this respect.

He added that they were investigating laser enrichment of uranium a highly sophisticated method.

Mr Lomas said there had been speculation that South Africa had built a "mini nuke" for their 155mm artillery piece, and that they had materials to make a neutron bomb.

Mr Lomas said the South Africans had been shrewd in the way they had tried to negotiate inspection by the International Atomic Energy Agency, the international watchdog which checks on diversion of strategic materials. Negotiations between the two fizzled out in the summer when the Agency refused to work under the conditions outlined by the South Africans.

The heart of the disagreement was, according to Mr Lomas, that the South Africans would for instance, only provide inventories of materials passing in and out of the enrichment plant, claiming that the "Heidens" enrichment process, which was indigenously developed, was commercially sensitive technology and that "intrusive" inspection was impossible.

In this way the South Africans preserved the status quo—an enrichment facility without international inspection after apparently entering negotiations in good faith, said Mr Lomas.

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CSO: 5100/6

SOUTH AFRICA

**IAEA SUSPENDS NEGOTIATIONS ON NUCLEAR FACILITY**

MB031000 Johannesburg Domestic Service in Afrikaans 0830 GMT 3 Nov 86

[Text] A spokesman for the South African Atomic Energy Corporation has confirmed that the IAEA suspended negotiations 6 weeks ago relating to international guarantees for the uranium enrichment facility at Pelindaba near Pretoria.

The spokesman told our Pretoria news staff that there is confusion about the international guarantees applicable to the three South African nuclear reactors. The suspended negotiations concerned only the uranium enrichment plant, he said, and not the nuclear reactors. No reasons had been given for the suspension of the negotiations.

The statement by the Atomic Energy Corporation follows accusations earlier by a Zimbabwean minister that South African nuclear reactors are not subject to international guarantees and pose a security threat to southern Africa.

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CSO: 5100/6

USSR

**U.S. DATA SHOWS PAKISTAN ON BOMB 'THRESHOLD'**

LD042103 Moscow TASS in English 1631 GMT 4 Nov 86

[Text] Washington November 4 TASS -- Pakistan detonated a high explosive device last September as part of its continuing efforts to build a nuclear weapon, THE WASHINGTON POST reports. This information is supplied by a classified Defence Intelligence Agency report, which points out that it was Pakistan's second such test this year as it is trying to perfect a nuclear weapons triggering package. Meanwhile, a Pakistani atomic plant at Kahuta is enriching uranium to a sufficient level to make a bomb.

All this information, gathering by the U.S. intelligence services, shows that Pakistan is on the threshold of producing weapons of mass annihilation -- "two screwdriver turns" from having a fully assembled bomb, as the newspaper says.

Meanwhile, Washington is closing its ear to ever new reports about Pakistan's efforts to develop nuclear weapons. Contrary to facts which are well known to the U.S. Administration, President Reagan certified to Congress last month that Pakistan was not developing nuclear weapons. The word of the White House chief gives the "green light" to another package of U.S. military and economic aid to the value of 600 million dollars to Pakistan.

A senior administration official, THE WASHINGTON POST says, publicly said that keeping Pakistan from obtaining a bomb is a low priority on the list of Administration foreign policy goals. According to that source, the reason is Pakistan's willingness to help the administration by acting as a pipeline for the hundreds of millions of dollars in CIA covert assistance that is provided to the Afghan counter-revolutionaries -- a top priority for Reagan and his administration.

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CSO: 5100/8

USSR

ROUNDTABLE DISCUSSION OF NUCLEAR ENERGY IN USSR

LD181004 Moscow Television Service in Russian 1515 GMT 17 Oct 86

[Roundtable studio discussion entitled "The Chief Job of the Peaceful Atom" moderated by Yuriy Aleksandrovich Ulyanov, with Academician Anatoliy Petrovich Aleksandrov; Academician Valeriy Alekseyevich Legasov, first deputy director of the Kurchatov Atomic Energy Institute; and Viktor Ivanovich Dobrokhотов, chief of the Power and Electrical Engineering Department at the USSR State Committee for Science and Technology; video shows studio discussion --live or recorded]

[Text] [Ulyanov] Hello, comrades! As we all know, a CEMA session last December adopted a comprehensive program for scientific and technological progress in the CEMA countries up to the year 2000. Among the program targets there are several chief ones--or priority targets, as they are called--and these include the accelerated development of the atomic power industry. Why is the atomic power industry allocated a priority role? What problems have there been in this field, and what problems have perhaps arisen of late--particularly as the comprehensive program was adopted last December, and the events at Chernobyl with which we are all familiar took place this April?

[Aleksandrov] You know, first of all I would like to make a slight amendment to what you said in your introduction. We are not of the opinion that our country is the world leader in atomic energy. We are, of course, in a good position, but there are a whole number of countries which have developed atomic energy on a larger scale since the start, and that development, as you know, began in our country, where the first station was built. But afterwards construction developed at different speeds, simply depending on how many and what kind of fuel resources existed in each individual country. The difficulties that the United States had with fuel forced it to build a considerable number of stations quite quickly. Similarly, a severe fuel deficiency, an insecure supply of fuel from the Middle East and the increased cost of that fuel forced France to develop atomic energy very quickly, and they satisfy about 45 percent...

[Legasov--interrupting] Sixty-five percent...

[Aleksandrov] Sixty-five percent of their requirements...

[Legasov--interrupting] of their electricity requirements.

[Aleksandrov] ...of their electricity requirements by means of atomic power stations, while in our country it is only 11 percent. Nevertheless, it was quite right that the decision was taken to develop the atomic power industry at an accelerated pace in the CEMA countries. The reason is that fuel resources—and in our country they are, thankfully, in good shape and they are in large quantity—are becoming more and more expensive. The fields that we had in the western part of the country, for example the Donbass and Baku, now play virtually no role. The Siberian fields are having to be developed, so we are continually moving further east to find fuel supplies. This fuel has to be transported over long distances. This increases the price, and it creates a situation whereby atomic energy in our country is substantially cheaper throughout the whole of the western part of our country to the Urals than energy derived from traditional fuel.

[Ulyanov] What about the plans for the future, Anatoliy Petrovich, the thing I was asking about: Have they changed since April?

[Aleksandrov] Well, of course in all our further plans, and also in our actual construction work, we have to take into account the lessons drawn from the Chernobyl accident. It would simply be impossible not to take them into account, and this will lead to certain changes in the plans. However, the development of the atomic energy industry will nevertheless continue, and will continue on the scale that is intended, or approximately on the same scale. But, of course, serious technical, educational and other measures will be taken to reduce the risk involved in atomic energy.

[Ulyanov] But there's no alternative to it.

[Aleksandrov] There's no alternative, and we must bear in mind that in fact, as the last world energy conference showed, the world resources of conventional fuel including even coal may be exhausted within the next 150 years.

[Ulyanov] Viktor Ivanovich, you have had the opportunity to visit several foreign power stations. Could you, as a construction and power specialist, say why our fraternal countries, for example Bulgaria, Czechoslovakia, Hungary and the GDR, have such an interest in the accelerated development of the atomic energy industry?

[Dobrokhотов] First of all, Yuryi Aleksandrovich, I would say that this interest is based on the great amount of scientific research that has been carried out in many countries, or I would even say in all of the countries in the CEMA, together with our scientific research organizations, which have studied all the possible options for the development of our countries' fuel and energy complexes to find the possible paths of that development. And the result of all the research, briefly, is the conclusion that there is no alternative development aside from atomic energy to compensate for all the

negative phenomena involved in the development of the fuel and energy complex. So behind this acceleration in the development of the atomic power industry there stands a great deal of work by scientists and researchers. It wasn't just someone who thought it was a good idea and said, let's develop the atomic power industry. Calculations were made, and they were backed up. They took into account the development not only of our countries, the CEMA countries, but that of the world energy system as well. Furthermore, I would say that today our scientists and power industry specialists are talking about the need to develop the atomic power industry also for supplying heat--not only to generate electricity, but also to use atomic energy to provide city heating, hot water, and for other purposes.

[Aleksandrov] And even for production engineering.

[Dobrokhotov] And even, in the future, for the development of production engineering.

[Ulyanov] And that is so for all the countries?

[Dobrokhotov] That is our general line which was supported; it is the joint line of the CEMA member countries.

[Ulyanov] Viktor Aleksayevich, you were at the session, or the conference, as it was called, of the International Atomic Energy Agency, the IAEA, in Vienna. What were the chief results of that conference, and what is being said in the rest of the world about the further construction of atomic power stations?

[Legasov] More than 500 specialists in the field of atomic energy, medicine, safety, and general energy came to Vienna because they were alarmed by the circumstances involved in the accident at the Chernobyl power station, in a similar way to the sentiment that you expressed when you opened our meeting today. The specialists wanted to find out whether they should alter their plans and what it would mean. Well, what were the results of the conference? First of all I would like to say that before the meeting, when the specialists were using chiefly newspaper information--often information from non-Soviet newspapers which was not always accurate and sometimes simply completely inaccurate--the specialists were as yet unable to express a view. But the first result was that the specialists are now talking the same language. They have all found out what the Soviet reactor where the accident happened is like, what safety measures were built into the design of the reactor, how the staff operated, and what mistakes they made which led to the tragic events at Chernobyl.

The main conclusions that were drawn there are as follows: First, that the replacement at the present time of the nuclear power industry, by means of which 15 percent of all electricity in the world is now being produced--if this 15 percent were to be replaced by coal, gas or oil sources, then there would be an incredible increase in the amount of organic fuel being transported, burned and extricated. Here I am saying nothing of the permanent

effect on people's health--the permanent effect of the carcinogenic components which are given off during the burning and extraction of coal, for instance, and from other organic power-industry sources that we use. There would be considerably more of this long-term negative effect on people's health. The second conclusion reached was that this nevertheless does not mean that the nuclear power industry, to which such a substantial role is being assigned even at the present time, and even more so with regard to its development, should be preserved in the form in which it now exists where there has been the American accident at Three Mile Island in 1979, the very big accident at Chernobyl that occurred in our country and an accident in the FRG. Accidents sometimes occur with this complex and power-intensive equipment that can lead to major consequences. Consequently, work on the safety of nuclear sources must be pursued even more intensively than it has been till now.

[Ulyanov] Anatoliy Petrovich, I have had occasion to read in the western press highly positive assessments of the work of the IAEA and in particular of the Soviet delegation, which was there and gave a very frank account, comrades, of the events at Chernobyl, and so forth. However, some western mass information media have been speaking in general about the imperfect design of the reactor and claiming that it lacked some sort of concrete cover, and so on.

[Aleksandrov] You see, Valeriy Alekseyevich has just named the three or four major accidents that we know about in the atomic power industry. There has been the British accident, the German accident, the American one, and ours. But the following should be said, namely, that these accidents occurred in the most diverse types of reactors.

[Legasov] At the conference that we were speaking about the conclusion reached by the experts was that every technical device and every reactor has pluses and minuses, because in resolving, say, the problem of economics one worsens, say, some problem of control, and in improving the control system one worsens economics. This reactor had clearly-expressed advantages and some shortcomings, and the safety system and the control system were built with account being taken of the shortcomings of the reactor.

[Aleksandrov] That was so.

[Legasov] That is to say that the monitoring system, the protective system and the technical regulation were made with account being taken of the shortcomings. They, as it were, compensated for the shortcomings in the design by corresponding additional elements and the regulatory procedures in force. But on this occasion the personnel managed to act in such a way that all these compensatory systems were switched off, and then the reactor with its shortcomings found itself without all those technical devices, the creation of which had been directed at seeing that the reactor was controllable, reliable and tranquil. It was then that the event occurred.

[Ulyanov] So it is not a matter of the concrete cover, which should...

[Aleksandrov--interrupting] It is absolutely not a matter of the concrete cover. No sort of concrete cover can protect against a powerful explosion. In the final analysis this was understood too by the experts who examined our reactor from that point of view. One cannot say that all the best technical solutions have been chosen in atomic reactors and this new sphere of technology.

[Ulyanov] But it is not a question of some fundamentally new thing.

[Aleksandrov] We are trying continually to modernize them and are endeavoring to find more reliable solutions. Our reactors of following generations, of course, have always been better than the older generations reactors. That is all provided for; nevertheless shortcomings exist, and are sometimes detected during operation--shortcomings in the design or in this or that equipment. There are also cases of defects that result quite simply from the poor quality of manufacture of this or that component. We try, of course, to combat this intensely.

[Ulyanov] What is the degree of involvement of our fraternal countries in the construction of reactors and in the construction of new power stations?

[Aleksandrov] Well, for the water-cooled type of reactor, even the reactor buildings and parts of the reactors are made by these countries. In Czechoslovakia, for example, the Skoda Works manufactures reactors of 500,000 kw capacity, or 440,000 kw capacity.

[Ulyanov] On license from us?

[Aleksandrov] Yes, on license from us. It is our license, the specifications for the metals are ours. We have very good metals that are employed. That then is what they do.

[Ulyanov] What about Hungary, Bulgaria and the GDR?

[Aleksandrov] Each makes its contribution. Some of them make pumps. Even some of the protective systems are made there.

[Dobrokhoto] They make transfer machines and fittings.

[Legasov] Separator drums.

[Aleksandrov] Yes, they make separator drums.

[Legasov] The Czechoslovak side makes steam generators for our countries.

[Aleksandrov] That is so.

[Dobrokhotov] I would say, Anatoliy Petrovich, if I may, that this is one of the forms. We do have another second form. For instance, we have reached agreement on the construction on our soil of the Khmelnitskiy station. Each country makes its contribution, as it is called, and when the station is built at Khmelnitskiy electricity supplies will serve as payment for their contribution. This is another form of cooperation by our countries in resolving power-industry problems.

[Ulyanov] In the west claims are very frequently made that the Soviet Union foists outdated technology on its CEMA partners.

[Dobrokhotov] Well, I would answer this question as follows. One can say anything, and the other will withstand anything. But this must be proved, and, if we turn to the facts and facts are stubborn things, they speak of the reverse.

[Legasov] Incidentally, to come back to the experts, the specialists: I've not heard such a formulation as, your stations are nothing like ours, once from specialists. That slips out sometimes in journalism, but when the specialists were meeting the conversation was different. The attitude is very respectful to some technical solutions, for example, toward the fuel, the material of the building and the logic of certain systems which have been created in our country. The attitude is very respectful. And then indeed we can talk about, for example, a station such as the Loviisa station, built in Finland and based upon our Soviet reactor, the water-cooled 400. Anatoliy Petrovich was recalling it. And Finland built it with our technical assistance and with our ideas about stations. It's a splendid station, one of the best in the world. Or if you travel to the Paks station in Hungary it's a magnificent station. Any specialist in the world will say that it's a most modern station, not inferior in all its elements to any station in the world.

[Ulyanov] In other words Anatoliy Petrovich, we occupy a good place in the world in terms of...

[Aleksandrov--interrupted] No, I didn't mean it was bad. It's not in the least bit bad. Here I think that the level is the same, both in our country and abroad. In some places they are ahead and in others we are ahead.

[Ulyanov] We've been talking here about the future of atomic power stations, in particular the creation of thermal atomic power stations which will supply heat for cities.

[Legasov] We are saying that in the long-term specialized sources may appear for the production of heat, which produces only hot water or steam and which don't produce electricity.

[Dobrokhotov] In September groups of experts from CEMA member countries got together to consider technical-economic reports in the field of heat supply from various nuclear sources and they all generally confirmed the position

laid out before the Chernobyl accident. So this is very typical, that in general in the countries of our community the position regarding the development of nuclear energy to supply heat remains the same as it was before the accident at Chernobyl. And in particular the expediency and the economic nature of speeding up this work so that in the near future the main indices for the development of this trend can be clearly defined, has generally been confirmed. We are leaders here. The Soviet Union emerges here as a leader in these matters. Today two stations are being built in our country--atomic heat supply stations--in the city of Gorkiy and in the city of Voronezh, so we should gain experience here for further development. TETS atomic power stations which you mentioned are being built in our country. They combine the production of electricity and heat. They are being built in Odessa and Minsk.

[Legasov] And in Kharkov, I think.

[Dobrokhoto] Kharkov is being planned while Minsk and Odessa are already real installations where construction is underway. I should say, moreover, that very interesting technical solutions have been found. For the first time a large stream extraction turbine with a capacity of 1 million kw has been created by the Kharkov turbine works and it is to undergo tests at the Minsk station. I think that all this will make it possible to determine more clearly the path for the development of this trend in the CEMA member countries. This is one of the directions in our program which we are considering here today.

[Ulyanov] In a word, the peaceful atom has many problems; it runs ships in the Arctic and helps scientists to penetrate the secrets of the microworld in work on accelerators; and it also helps geneticists and plant breeders. But the main task of the peaceful atom is--what would you say, Anatoliy Petrovich?

[Aleksandrov] Energy of all types, both for obtaining heat and electricity and for maintaining thermal conditions for various kinds of production engineering, and for direct participation, with the help of plasma processes, in production engineering. This is a completely new direction which is being developed in particular in the institute of atomic energy by Valeriy Alekseyevich and his teams. And I, for example, think that this is a path which truly does not have any alternatives.

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CSO: 5100/005

USSR

USSR CITES NORWEGIAN OFFICIAL ON ISRAELI NUCLEAR PROGRAM

Moscow IZVESTIYA in Russian 20 Oct 86 p 1

[Article by V. Mikheyev: "Inspection Will Give the Answer"]

[Text] The government of Norway is reviewing the question of carrying out an inspection of Israel's nuclear facilities to determine whether or not the heavy water sold to them in 1959 was used for the production of nuclear weapons. P. Paust, a representative of the Norwegian Ministry of Foreign Affairs Oslo, announced.

As P. Paust explained to REUTER, the report of the English newspaper SUNDAY TIMES about Tel Aviv's 20-year long possession of their own nuclear arsenal prompted this step. As IZVESTIYA has already written, on 6 October the experimental reactor in Dimon, in the Negev desert, provided the basis for carrying out secret tests on the production of nuclear weapons.

A representative of the Stockholm International Institute for Research in the Problems of Peace (SIRI), S. Lodgard, stated that if these reports correspond to reality, then Norway has in fact aided Israel's creation of nuclear weapons.

Norway's Ministry of Foreign Affairs emphasized in its announcement that it has the right, according to the 1959 contract, to carry out an inspection at any time of the 21 tons of heavy water sold to Israel, and that such an inspection will clearly reveal whether Tel Aviv has an atomic bomb.

The representative of the Norwegian Ministry of Foreign Affairs P. Paust stated in an interview with REUTER that the heavy water had been sold to a number of states on the condition that it would be used by them solely for peaceful purposes.

CSO: 5100/6

USSR

**VELIKHOV ATTENDS NUCLEAR ENERGY SEMINAR IN ROME**

LD061821 Moscow TASS in English 1500 GMT 6 Nov 86

[Text] Rome, 6 Nov (TASS)--TASS correspondent Aleksey Golyayev reports:

An international seminar devoted to the issues of increasing cooperation among various countries to promote a peaceful and safe use of nuclear energy opened here today. It was sponsored by the international committee "Science and Peace" and is being held under the auspices of the Italian Foreign Ministry.

Attending the seminar are famed physicists from the United States, China, the Federal Republic of Germany and other countries. The Soviet delegation is led by Yevgeniy Velikhov, vice-president of the USSR Academy of Sciences.

Antonio Zichichi, a well-known Italian scientist, told TASS that the principal objective of the meeting was to bring to the broadest possible sections of the public the opinion of leading scientists on the issue of the use of nuclear energy. Specialists should say their authoritative word on this problem and the related issues of security in the heated polemics which have erupted in the world now, he said.

The nuclear energy is the source of life for the whole of mankind. It is crucial that reason prevail in this issue.

The seminar will be at work till November 8.

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CSO: 5100/007

USSR

PRAVDA ON IAEA SESSION, NUCLEAR SAFETY

PM041015 Moscow PRAVDA in Russian 27 Oct 86 First Edition p 6

[A. Pokrovskiy article: "Realities of the Nuclear Age"]

[Text] Vienna-Moscow--The split atmo immediately showed our world its opposite faces. "Between the startup of Enrico Fermi's first installation and the startup of Igor Kurchatov's first industrial nuclear power plant lay the sinister shadow of the Hiroshima and Nagasaki tragedy" is how the situation is evaluated in the "Program for Creating an International System [rezhim] for the Safe Development of Nuclear Power" put forward by the Soviet Union at a special session of the IAEA General Conference in Vienna.

The situation has deteriorated recently. A number of accidents at nuclear power plants in various countries have "split" public opinion on the issue of the use of nuclear power. Its opponents have been sufficiently influential to force the Austrian and Danish Governments, for example, to abandon the construction of nuclear power plants on the territory of these states. They tried to influence the course of the work of the IAEA special session, which was held precisely to consider measures to strengthen international cooperation in the sphere of nuclear and radiation security. I saw four young men outside the entrance to the Hofburg Palace putting up posters calling for the renunciation of nuclear power. At the same time teletypes brought the news from China that a contract had been signed with British and French firms for the construction of a new nuclear power plant in the country. "In China," Zhao Ziyang, premier of the PRC State Council, stressed in this connection, "nuclear power plants have only a small share in the development of the power industry, but our course aimed at developing such plants as an integral part of resolving China's energy problem will not change." This is further confirmation that the number of states making increasingly active use of the power of the split atom is growing.

Thus there is a clear clash between two trends that were impartially described at the IAEA session as follows: "Many honest people are 100 percent sure that nuclear power is the chief evil. Other equally honest people are 100 percent sure of the need to continue and expand the use of nuclear power not because they like it but because they can see no other suitable alternative at present. World history has already known cases where people 100 percent sure of something have turned out to be 100 percent wrong..."

So who is right? It was to finally seek an answer to precisely this question that the world's major specialists in the energy sphere gathered in Vienna. The situation demanded a sober, realistic approach to resolving the problem. The development of this approach was largely helped, in the specialists' opinion, by the "comprehensive and very frank" report on the accident at Chernobyl prepared by Soviet experts. It was discussed by more than 500 experts in the nuclear field from all over the world and an authoritative report for the IAEA special session was drawn up on the basis of their conclusions. A special complexion was given to the session's work by the document read by the Soviet representative at the very first sitting, a document whose essence is accurately reflected in the title "Program for Creating an International System for the Safe Development of Nuclear Power." Delegates noted with satisfaction that the document is based on a contemporary approach to problems and a new level of thinking in line with the special features of the nuclear age.

Let us take a closer look at the essence of the discussions which developed at the session.

The first question was: Can the world not manage to consume less electricity in the future than it does today? Calculations in this respect were unequivocal--despite economy measures and the reduction of production energy-intensiveness, satisfying the social and economic requirements of states' development is inconceivable without increasing electricity generation. So another question is inevitable: How to achieve this?

At first the list of sources looks impressive even without nuclear installations--coal, oil, gas, water resources, biomass, wind, sun. But the majority of them cannot, in the foreseeable future, serve as the basis for large-scale, economical energy production. In the majority of countries there are not very many untapped water resources left. And specialists calculate, in the future planning organs can realistically rely only on coal, oil, gas, and nuclear fuel. And, as they themselves add, the exploitation of each of them involves a certain degree of risk.

I will remind you that world statistics show that the extraction and transportation of coal, for example, cost a considerable number of lives each year as a result of accidents. The ecological consequences of burning coal and oil are still more dangerous. In this respect not only atmospheric pollution but also the emergence of the so-called "greenhouse effect" must be taken into consideration. IAEA Director General Hans Blix said this about it in his report: "The most serious problems of ecological breakdown are posed by gradual processes, some of which have global consequences. They do not attract the kind of attention attracted by a single dramatic event, such as Chernobyl, for example. However, their significance from the viewpoint of the threat to people's lives and health and the preservation of life on our planet is incomparably more serious."

It is against this background that one should evaluate the potential and the dangers inherent in the extensive use of nuclear power, which, incidentally, is cheaper and also cleaner from an ecological point of view. The following figure was quoted at the session: Before the Chernobyl accident nuclear power had accumulated 4,000 reactor-years of steady exploitation. The conclusion therefore automatically comes to mind: The positive record of nuclear power must be restored. A characteristic detail is that the leaders of the seven largest capitalist powers, who gathered in Tokyo after the events at the Chernobyl AES, considered it necessary to make a special point of saying that the proportion of nuclear power in energy production will continue to grow throughout the world--"on the condition that it is used properly."

Yes, this is a difficult matter in both the scientific and technical and the simply emotional respects. Do the different approaches to determining radiation danger levels not confuse people? In Great Britain and Sweden, for example, milk is considered unfit for consumption if it contains 2,000 becquerels of iodine-131. In Poland the level is 1,000 becquerels, in Hungary it is 500, in Austria 370, and in Hessen, in the FRG, 20.

The formulation of generally accepted international norms and approaches in the sphere of nuclear installation safety is all the more essential in view of the fact that no national borders exist for a radioactive cloud caused by an accident somewhere, for example. This is why our country's proposal to set up an international nuclear safety system met with such broad support.

Of course, there are a considerable number of complex problems here which cannot be immediately resolved. One of them is safety standards at a nuclear power plant or, to use a broader concept, the man-machine relationship. This is a burning problem for many modern technologies, including the peaceful use of nuclear power. That is why an IAEA conference on this subject is planned for 1988.

In short, there is still a considerable amount to be done. The CPSU Central Committee Politburo has noted the great importance of continuing the line of developing relations between Soviet organizations and the IAEA in every area of its activity, primarily with regard to the questions of setting up an international system for the stable, safe development of nuclear power.

The first steps in this direction were the two conventions approved at the special session of the IAEA General Conference on prompt notification of nuclear accidents and on assistance in the event of nuclear accidents and radiation emergencies. They have not only been signed by dozens of states but are actually already in effect, introducing a definite stabilizing factor into a complex sphere of international relations. It is precisely within the framework of these conventions that prompt information was given about the fire on the Soviet nuclear submarine. Incidentally, the conventions apply to incidents not only at industrial installations but also at military nuclear installations.

This is a very important point. My job as a journalist took me to the IAEA session virtually immediately after a visit to a USSR Academy of Sciences Earth Physics Institute seismic expedition and then to the Chernobyl AES. In North Kazakhstan I saw the trade on a seismogram flicker after a nuclear explosion thousands of kilometers away--in the American state of Nevada. And at Chernobyl I saw graphically for myself what can be done by radiation once it is out of control--radiation that was only a small percentage of the level of radiation present after the explosion of a small nuclear bomb. And that is why the words of B. Shcherbina, the head of the Soviet delegation, on the first day of the IAEA special session were particularly understandable: "We must look after our home. No one can try to stop the world to get off."

This was directly echoed by a statement made at approximately the same time on another continent by the American physician R. Gale, who took part in treating the victims of Chernobyl: "The accident which happened on 26 April undermines the theory of the possibility of surviving after a nuclear war."

Yes, in the history of mankind there has never been a scientific discovery more significant in its consequences than the penetration of the heart of the atom. Thirty years of experience in using its energy to meet society's socioeconomic needs is convincing evidence that the world has irrevocably entered the nuclear era. But the achievements of nuclear science and technology must serve the interests of human civilization alone.

Militarism in nuclear garb, the session noted, has created a critical situation which it is becoming increasingly difficult to control with every new spiral of the arms race. Real nuclear safety on our planet is inconceivable without ending the material preparation for nuclear war and totally eliminating the means of waging such a war. Realism in the nuclear-space age imperiously demands a new approach to international relations and the pooling of efforts by states with different social systems for the sake of ending the global arms race and radically improving the political climate in the world. The way to do this is to stop nuclear tests and ultimately free the world from nuclear weapons.

The time that has passed since the end of the session and the recent meeting between the USSR and U.S. leaders in Reykjavik confirm that our country's policy is consistently oriented toward eliminating nuclear weapons in a comparatively short time. And, conversely, American plans to deploy [razvertyvaniye] SDI threaten to pose a nuclear threat to our planet from space. A qualitatively new situation has been created as a result and the struggle for nuclear disarmament has risen to a higher level. And this means that in the course of this struggle we must make more active use of every opportunity to reinforce international nuclear safety procedures.

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CSO: 5100/007

USSR

BRIEFS

ACADEMICIAN VELIKHOV AT ROME NUCLEAR SEMINAR--The Soviet proposal for setting up an experimental Tokamak reactor was at the center of attention among participants of an international seminar of scientists, which has ended in Rome, on the topic of worldwide cooperation for the peaceful and safe use of nuclear energy. Taking part in the work of the seminar were the most prominent scientists and physicists from the United States, PRC, the FRG and a number of other countries. Velikhov, vice president of the USSR Academy of Sciences, headed the Soviet delegation. At the seminar matters were also discussed on international cooperation in ensuring the safety of nuclear power stations, the influence of various methods of production of power on the environment, and the necessity of international cooperation in the working out of thermonuclear power engineering. [Text] [Moscow Domestic Service in Russian 1130 GMT 10 Nov 86 LD] /6662

CSO: 5100/009

SPAIN

OFFICIAL REPORT ON ASCO REACTOR SHUTDOWN RELEASED

Madrid EL PAIS in Spanish 25 Sep 86 p 19

[Text] The CSN [Nuclear Safety Council] has instructed the management of the Asco nuclear power plant to increase the frequency of periodic safety checks at the plant. For the next 3 months, these checks will have to be conducted every 2 weeks. These instructions were contained in the final report prepared by CSN technical experts on the latest defects found in Asco 2. This report, which was released yesterday, makes it clear that there have been problems with maintenance at the plant.

The Nuclear Safety Council's final report on the problems found in the Asco 2 facility on 1 July and 23 August 1986 cites as fundamental causes the existence of excessive operating pressures in the hydraulic circuit of the actuator of the steam isolation valves (where the failure occurred); an excessive temperature in the oil used; and problems with the maintenance of these systems. The CSN, which authorized the plant to reopen on Tuesday [23 September], after it had been shut for a month, extended these instructions to Asco's unit 1 as well.

The CSN's deputy director for analysis and evaluation, Antonio Gea, who summarized the conclusions of the report prepared by 150 technical staff members of the high-level nuclear organization, stressed that the maintenance done at Asco 2 had been performed correctly, "even though there is always room for improvement." But despite that, the report cites maintenance problems as the ultimate cause of the defects found in the second unit of the Asco nuclear power plant.

The final report confirms the earlier predictions about the causes of the defects found in the plant's steam isolation valves. There were also incorrect instructions from the manufacturer who supplied the oil to the plant, as well as defective maintenance of the valve actuators.

While Antonio Gea emphasized the lack of gravity of the problem detected on 23 August when one of these valves would not work--since the steam moving through the affected circuit is not radioactive--it is true that the failure of two of the three valves comprising the cooling system, as it occurred on 1 July, is not even listed in the operating instructions as a hypothetical accident, as it is highly improbable.

The CSN's deputy director for analysis and evaluation reported yesterday that the CSN has not taken any punitive action against the owners of Asco. "What more punishment can there be than having the plant shut down for a month?" he asked. The losses caused by the plant's period of inactivity amount to about 5 billion pesetas.

The plant's management has pledged, as the CSN report states, to submit to the CSN a proposal designed to "improve the level of its maintenance and of its work on preventive, corrective, predictive, and incidental aspects of its operation."

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CSO: 5100/2402

SPAIN

VANDELLOS REACTOR PLANS MAINTENANCE SHUTDOWN

Madrid EL PAIS in Spanish 25 Sep 86 p 19

[Article by Lola Lara]

[Text] Tarragona. Next Sunday [28 September] the Vandelllos I nuclear power plant, located in the Tarragona district of Baix Camp, will begin a scheduled shutdown which will last between 3 and 4 weeks, during which various general maintenance operations will be performed. These procedures are done every year, and require the hiring of about 150 people.

During this period of inactivity, the electric companies which own Vandelllos I (FECSA [Electric Power of Catalonia, Inc]--23 percent; ENHER [Ribagorza National Hydroelectric Enterprise]--23 percent; Hidroelectrica de Cataluna-Hidrola--23 percent; Hidroelectrica del Segre--6 percent; and EDF [French Electric Company]--25 percent) will lose about 1 billion pesetas, which they would normally be billing if the plant were operating.

Moreover, the cost of the personnel and materials needed for the general maintenance operations amounts to approximately 100 million pesetas. The forecast for Vandelllos I's electricity production for 1986 is 2.9 billion kilowatt-hours; to date, the plant has generated almost 2.3 billion kilowatt-hours, so it is perfectly feasible for it to reach the scheduled production level this year.

Vandelllos I began to produce electricity in 1972. The plant has begun a complete reevaluation program of its facilities, which will last for 2 or 3 years. This program is under the supervision of the Nuclear Safety Council.

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CSO: 5100/2402

TURKEY

BRIEFS

NUCLEAR FUEL PILOT FACTORY--Turkey's first nuclear fuel pilot factory was commissioned at the Cekmece Nuclear Research and Training Center today. Cahit Aral, the minister of industry and trade and the chairman of the Turkish Radiation Security Committee, said at the ceremony that the Turkish Atomic Energy Institute is now capable of transferring technology to other countries. Professor Ahmet Ozemre, chairman of the Turkish Atomic Institute, said that the experience and know-how acquired in this factory will make possible preparations for a factory capable of producing 180 tons of natural uranium nuclear fuel annually. He said: The factory, built solely by Turkish engineers, scientists, and technicians, was completed within 18 months at a cost of 285 million Turkish lira. Approximately 93 percent of the material used to build the factory was locally made. [Summary] [Ankara Domestic Service in Turkish 1700 GMT 30 Oct 86 TA] /8309

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